PMA-2000 POWER MANAGEMENT ADAPTER
INSTALLATION MANUAL

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1 Introduction

The **PMA-2000** is a power management device designed especially for theatre projection rooms. It provides intelligent power supply management for theatre projection equipment, giving exhibitors the means to achieve a complete unmanned projection system.

- Retrofit installation means zero interference with the existing power supply system, making seamless integration possible for theatres under construction or currently in operation.

- Intelligent power supply management system monitors and controls power routed to a range of theatre equipment, including projectors, servers, audio systems and luminance equipment.

- Together with Theatre Management System (TMS) and Quality Management System (QMS), unmanned projection can be achieved, based on the foundation of automated projection.

2 Packing List

The PMA-2000 package includes two boxes: the main package and the accessories package. The contents are listed under

Table 1.

PMA-2000 Packing List			
Sr. No.	**Description**	**Quantity**	**Photo**
1	PMA-2000 Power Management Adapter	1	
2	Mounting Bracket	1	
3	Projector Wires (6mm^2 - Red)	2	
4	Audio System (6mm^2 - Yellow)	2	
5	Exhaust Fan Wires (2.5 mm^2 - Yellow/Green/Red 2pcs each)	6	

6	Lighting System Wires (2.5mm^2 - Yellow/ Blue)	3	
7	Equipment Socket Wires (2.5 mm^2 - Red/ Blue)	3	
8	International standard power cord	1	
9	Metal hose	3m	
10	Supplementary Parts and Accessories	Multiple	

Table 1

3 Hardware Installation

The PMA-2000 power management device adopts wall-mounted installation.
The PMA-2000 power management device adopts wall-mounted installation. It is usually installed adjacent to the power distribution box in the projection room, as shown in **Figure 1**. The device has **two outlet ports** on either side for cable connections.

Figure 1: Mounting location for PMA-2000

When there is not enough space around the distribution box, the PMA-2000 can be installed above or below the distribution box and the metal hose can be used for wiring, as shown in **Figure 2**.

Figure 2: Alternate Installation Positions

3.1   Introduction of Front Panel and Ports

The upper half of the device to designed to be a manual control panel and a status display area. The buttons themselves are status light indicators. Illuminated indicator means that the device connected to the corresponding output of the PMA-2000 is powered up, while non-illuminated indicator means that the device is not powered. Due to safety considerations, pressing the individual button will not execute power supply connection/disconnection unless it is pressed concurrently with the 'Unlock button' located at the top right corner, to achieve manual control. The control buttons are arranged in the order from left to right: *Projector, Exhaust, Audio, Lights, Devices, Masking, Aux-A, Aux-B*.

Figure 3: Front panel of PMA-2000

The lower half of the device consists of the connecting terminal of the corresponding control buttons, network connectors and the power switch for the device. The connecting terminals of the Projector and Audio System adopts **65A** and the rated load current is **50A**. The other connecting terminals adopt **30A** and the rated load current is **20A**. The Projector, Audio System, Exhaust fan and Screen Masking system are designed to be connected with **380V** voltage device. The Lighting system, Device sockets, Aux-a and Aux-b have regular **220V** power loading. The PMA-2000 is a device with **220V** input voltage. Detailed connector arrangement sequence and illustrations are shown in **Figure 4**.

Note: The power of the device should be connected shall not exceed the rated power of the PMA terminal and wire load. Otherwise the device will be damaged.
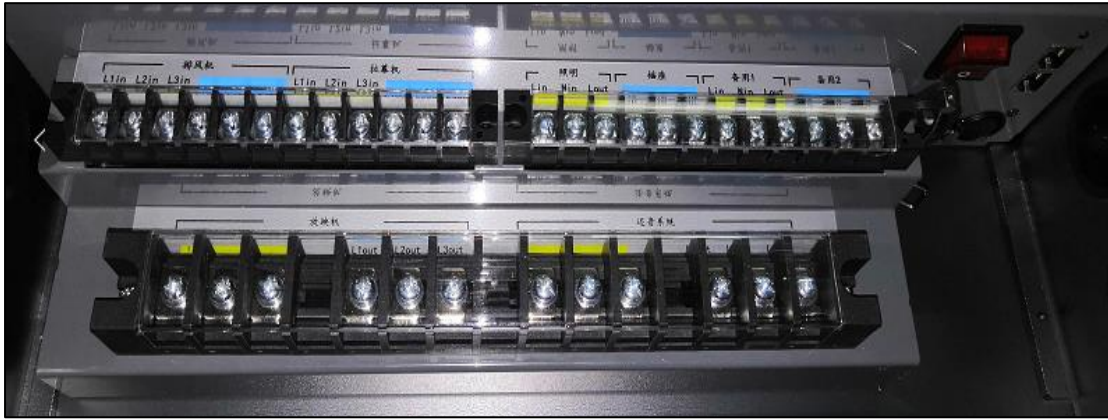
Figure 4: Connectors on the PMA-2000

Two network ports have been provided on the PMA-2000 with in-built switching function. The Management Network cable from the cinema control room is first connected to one of these network ports and then routed to the single hall manageable switch via the other network port. In this setup, the PMA-2000 is available on the network in case of power failure to the single hall switch.
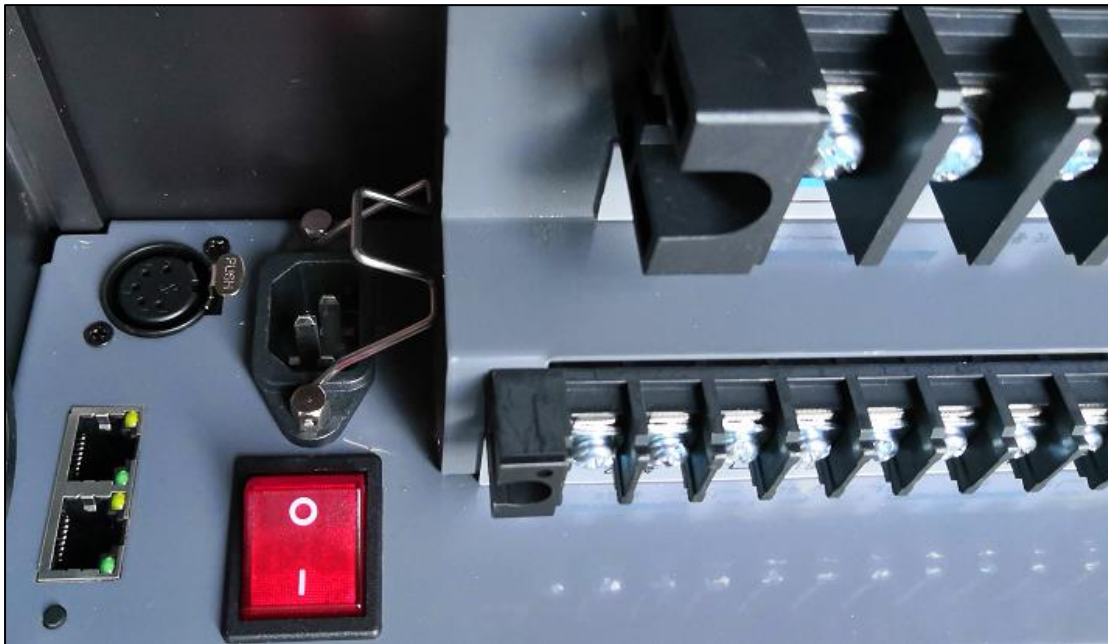

Figure 5: Network Ports on the PMA-2000

3.2   Device Installation and Cabling

Step 1: Install the bracket in the accessory box on the back of the PMA device. 	Step 2: Use the cardboard in the PMA device as a template to determine the position of the mounting holes.
Step 3: Properly punch holes with cardboard template and install the bracket. 	Step 4: Install the PMA on the bracket and mark the position of the outlet port on the distribution box using a marker.
Step 5: Remove the PMA and use a 32mm hole opener to cut the hole. Polish any sharp hole edge to prevent breakage of any wires. 	Step 6: Install PMA threading and connect the corresponding incoming and outgoing power supply wires according to the device labels.

Step 7: Connect network cable and power cord for the PMA device.	

3.3   Power Supply Connection to the Projector

The projector is connected to the live wire via 6mm^2 Red electrical wires (with crimped ring terminals) and the PMA is connected to the **'projector power supply'** via **'live wire in'** and **'live wire out'**.

1. Connect the **'live wire in'** from PMA into the live wire port at the lower end of the projector circuit breaker and identify with 1AWG mark.

2. Connect PMA's **'live wire out'** with the original live wire at the lower end of the projector circuit breaker and identify with 1AWG mark.
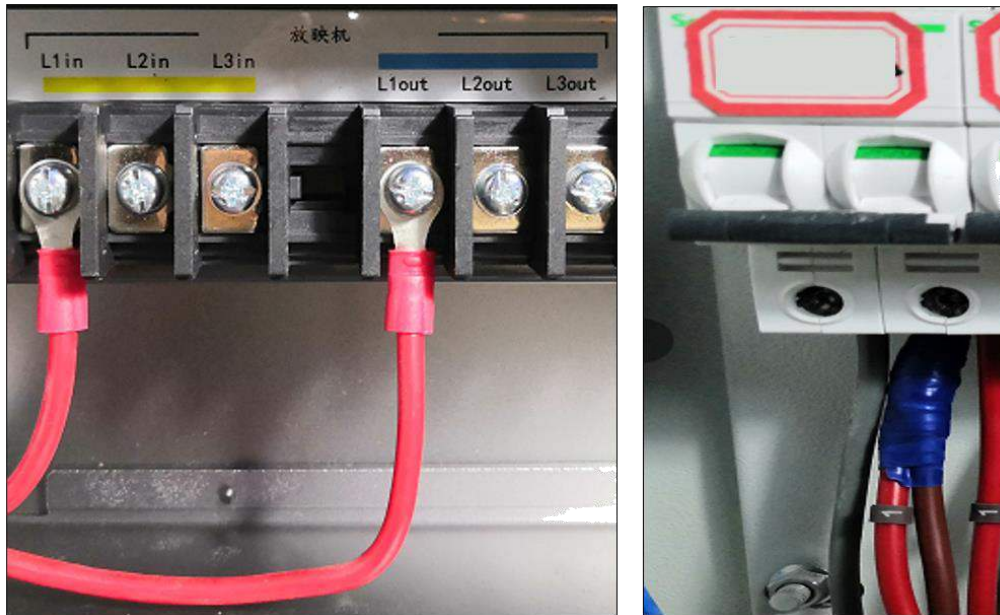

Figure 6: Projector circuit breaker connection

3.4   Power Supply Connection to the Ventilation System

The ventilation system uses a 380V power supply via 2.5mm^2 Yellow, Green and Red color cable electrical wires (with crimped ring terminals) which are connected to PMA three IN and three OUT terminals in turn.

1. Connect the **'live wire in'** from PMA to the live wire port at the lower end of the exhaust fan circuit breaker and identify with 2, 3 and 4AWG marks.

2. Connect PMA's **'live wire out'** with the original live wire at the lower end of the exhaust fan circuit breaker, and identify with 2, 3 and 4AWG marks.
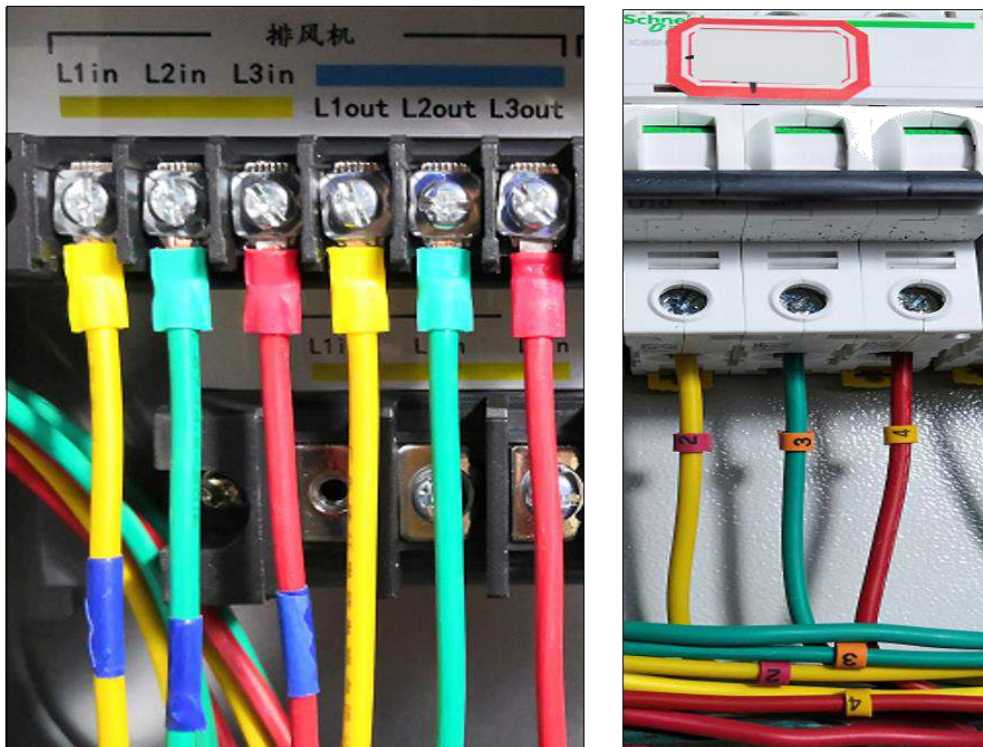

Figure 7: Ventilation System circuit breaker connection

3.5 Power Supply Connection to the Audio System

Audio system is connected to the live wire via 6mm^2 Yellow electrical wires (with crimped ring terminals), PMA is connected to **'audio system power supply'** via **'live wire in'** and **'live wire out'**.

1. Plug the **'live wire in'** from PMA into the live wire port at the lower end of the audio system circuit breaker and identify with 5AWG mark.

2. Connect PMA's **'live wire out'** with the original live wire at the lower end of the audio system circuit breaker, and identify with 5AWG mark.
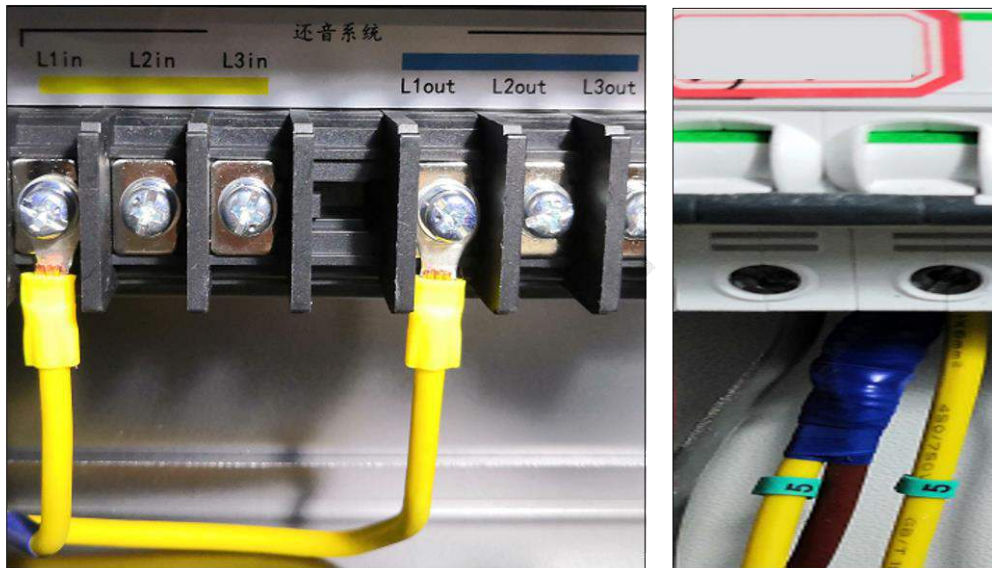

Figure 8: Audio System circuit breaker connection

3.6 Power Supply Connection to the Lighting System

Lighting system is connected to the live wire via 2.5 mm^2 Yellow electrical wires (with crimped ring terminals), PMA is connected to **'lighting system power supply'** via **'live wire in'** and **'live wire out'** and the neutral wire is connected via 2.5 mm^2 Blue electrical wires.

1. Plug the **'live wire in'** from PMA into the live wire port at the lower end of the lighting system circuit breaker and identify with 6AWG mark.

2. Connect PMA's **'live wire out'** with the original live wire at the lower end of the lighting system circuit breaker and identify with 6AWG mark.
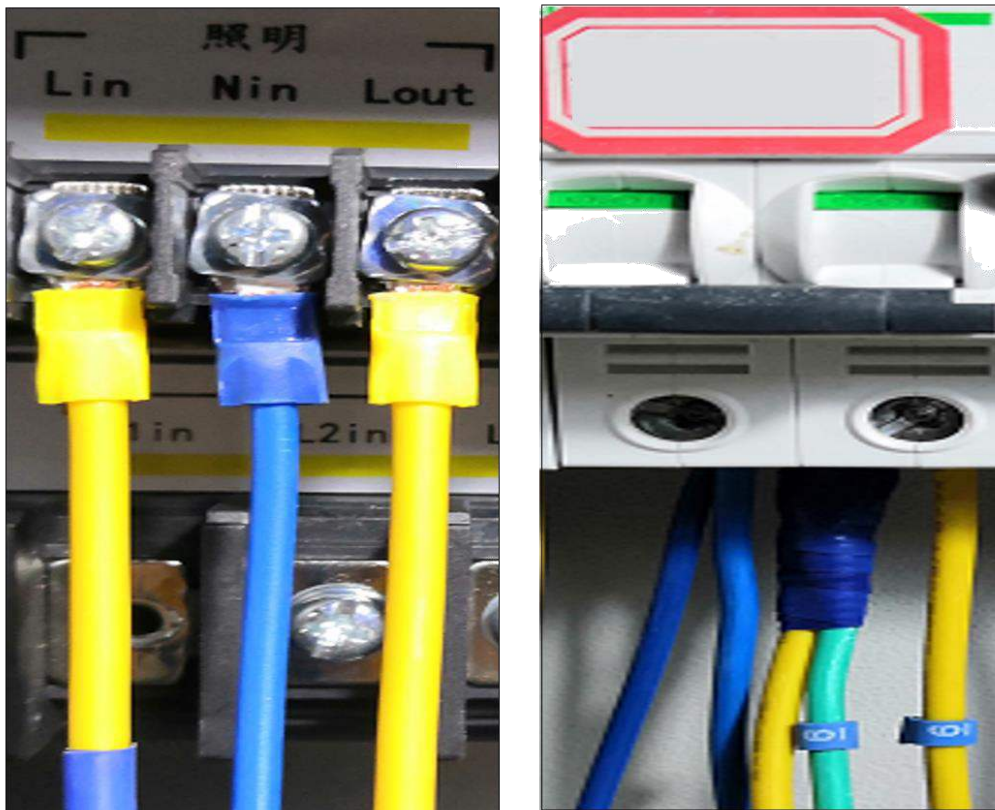

Figure 9: Lighting System circuit breaker connection

Note: If a leakage protection switch is in use, the neutral wire can only be connected to this specific neutral wire port on circuit breaker. It cannot be connected to the public neutral wire port or else the circuit breaker will be triggered.

3.7 Power Supply Connection to the Device Sockets

Device sockets are connected to the live wire via 2.5 mm^2 Red electrical wires (with crimped ring terminals), PMA is connected to **'device socket power supply'** via **'live wire in'** and **'live wire out'** and the neutral wire is connected via 2.5 mm^2 Blue electrical wires.

1. Plug the **'live wire in'** from PMA into the live wire port at the lower end of socket circuit breaker and identify with 7AWG mark.

2. Connect PMA's **'live wire out'** with the original live wire at the lower end of the socket circuit breaker, and identify with 7AWG mark.

Figure 10: Device Socket circuit breaker connection

3.8 Power Supply Connection to the Screen Masking System

The connection method is the same as that of the Ventilation system. Please refer to **Section 3.4** for the power supply connection of the Ventilation system.

3.9   Power Supply Connection to the PMA-2000

The PMA-2000 uses a regular 220V power supply. Thus, only a three-pin international standard cable (with quick-connecting terminals) is required.

1. On the PMA, connect a 3-pin cable to the **'system power supply'**.

2. Connect the Red and Blue wires to the live wire port and neutral wire port respectively underneath the backup circuit breaker.

3. Connect the Yellow and green wire to the public ground wire port in the power distribution cabinet.
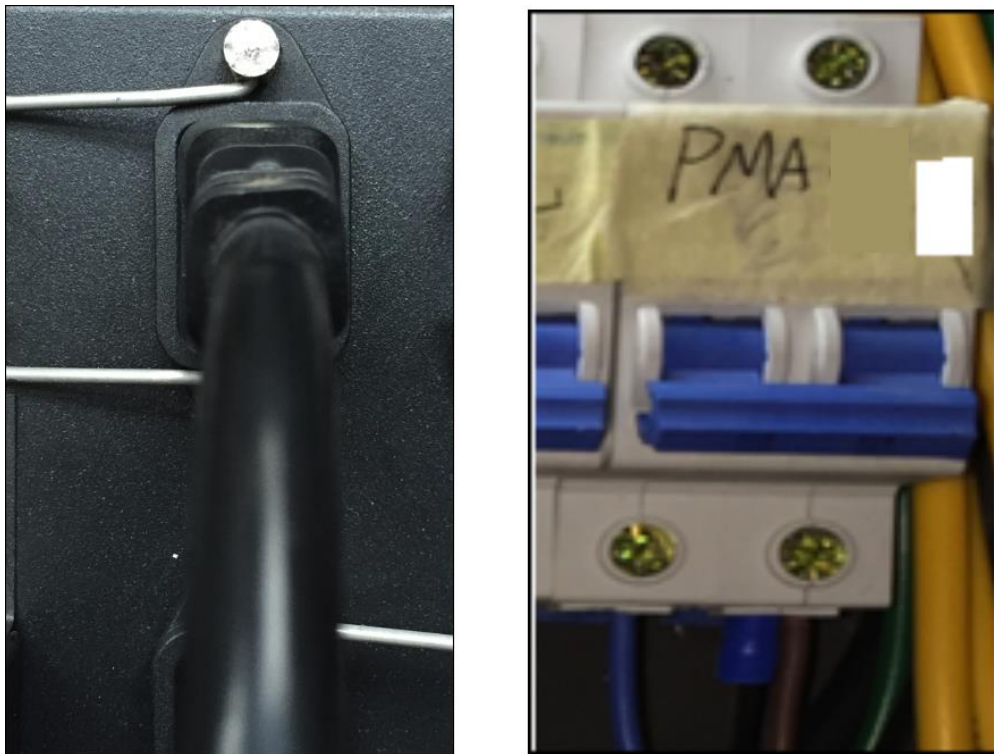

Figure 11: Power Supply for PMA

Note: Since the PMA requires continuous power supply, the corresponding circuit breaker should remain in the closed position.

4   Software Configuration

4.1   Setting up IP Address

The default IP address for the PMA-2000 is 192.168.3.201. To change the IP, the laptop network port must first be modified to that of the PMA network port, then connected directly to the PMA with a LAN cable.

Run the IP configuration software ('IP & MAC Config V2.1.1.exe') on the PC/laptop. Click on **'Advanced'** followed by **'Search'**. The current IP address of the PMA-2000 will be shown as well as the current IP of the PC/laptop. Only when both IPs are on the same network subnet, the IP of the PMA will appear in Black. Otherwise, it will remain greyed-out which implies the inaccessibility to the IP modification main interface.
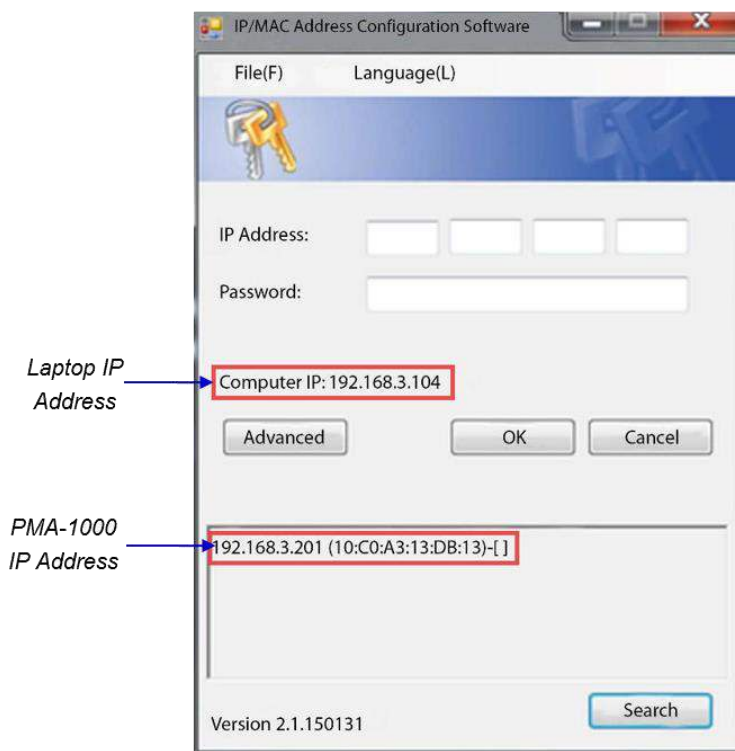

Figure 12: Modifying the IP Address of PMA

Enter the IP address of the PMA-2000 in the **'IP address'** field and leave the '**Password**' field blank. Click **'OK'** to enter the IP modification page. After accessing to the page, first modify the gateway address, click '**Update**' to save. Then modify the IP address, and click '**Update**' to save.

In case multiple PMA-2000 devices have been installed at a particular site, ensure that each PMA device is assigned a unique MAC address. To do this, click on the '**Generate random MAC address**' button to generate a unique MAC address and then click '**Change**' to save.

The program will return to the login interface. Click '**Advanced**', followed by '**Search**'. Users can verify if the IP address has been modified successfully.
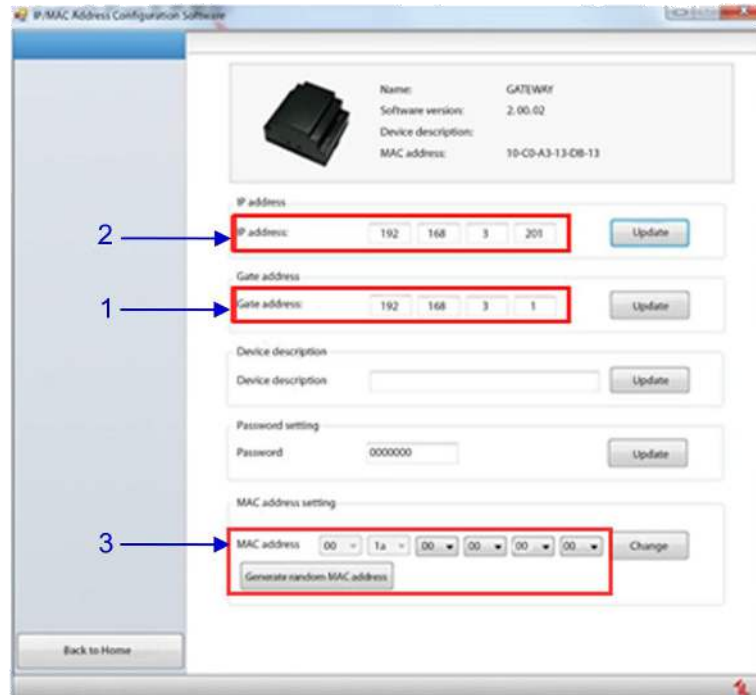

Figure 13: Update Gate & IP Address

1	Modify the **Gate Address** & click the Update button on the right
2	Modify the **IP Address** & click the Update button on the right
3	Generate the **MAC Address** by clicking on Generate random MAC address button & click the Change button on the right

Table 2

4.2 Adding a new device

PMA-2000 can be added and configured at the **Screen** tab of 'GDC TMS-2000 Software'. Click on '**Automation**' under **Device** sub-tab. A window will pop up. Select the device Model, fill in the device information, IP address and select the located hall number under the Link to: drop-down, as shown in **Figure 14**.

Figure 14: Adding Device details

Channels available for PMA-2000 can be configured by clicking the **Manage Channel** button. Under the 'Manage Channel' window, users can select which channels to enable and rename its labels by selecting a channel in the list, then click **Rename** button. Enter the desired new label for the channel, then click the **Save** button and exit.

Figure 15: Manage device channels

4.3   Remote Control of Power Connection/Disconnection

Click the [icon] icon at the Monitoring tab and the 'Automated Management' window will pop-up. Select the **PMA1000 Controls** sub-tab, individual power supply circuit can then be controlled.

Figure 16: PMA-2000 remote controls

Note: The Blue timeline represents the screening period. If the current time is within the screening period, only power connection operation is available and power disconnection operation is invalid.

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