



# OPERATIONS MANUAL

i.Net Rack Mounted Headend Enclosure (Model G8350)

Document Number: 200-0008 Rev E

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In the event of trouble, please contact:
Name:
Address:
Phone Number:

## IMPORTANT SAFETY INSTRUCTIONS



RISK OF ELECTRIC SHOCK- DO NOT OPEN THE UNIT. THERE ARE NO SERVICABLE COMPONENTS INSIDE.

- 1) Read these instructions.
- 2) Keep these instructions. Instructions are to be framed and placed adjacent to the control unit for ready reference.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 14) **WARNING** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and do not expose to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus

An apparatus with Class I construction shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or appliance coupler shall remain readily operable.

The unit must be installed within an enclosed rack.

System: G8350 i.Net Masking Only Rack Unit

- Class B wiring: MUTE MASKING IN, FAULT STATUS OUT
- At least one UPS and batteries should be used to provide secondary power supply for emergency purposes and be installed in the same rack as the G8350.
- The G8350 should be installed in the following locations:
  - 1) Within a key-locked cabinet or rack with physical security level 1 or higher
  - 2) In a controlled access room with a minimum access control security level 1. Front-mounted controls should only be changed by Authorized Personel.
  - 3) Use four 10-32 pan-head machine screws to mount the unit to the rack rails.
- The system is provided with a Communication Security Level 0, which indicates no Security Level employed.
- The following wiring connections are intended to be protected against mechanical damage.

IN between G8350 and Fire Alarm Control Panel or Notification Appliance Circuits FAULT STATUS OUT between G8350 and Fire Alarm

Control Panel or Notification Appliance Circuits.

- The FACP and G8350 units need to be installed adjacent to each other.
- The system is not to be used in buildings providing Suppression Service (Systems using Halon, etc).

  Sprinkled systems are allowed.

- Use a listed Rack with the following minimum ventilation openings:

Fully perforated Front and Back door that has a minimum 90% of the surface area provided with perforated openings.

Top Enclosure of the rack shall be provided with a ventilation openings that cover a minimum surface are equal to 40% of the overall top enclosure surface area.

The side enclosures of the rack shall be provided with minimum ventilation openings located at the upper 1/3 and lower 1/3 of each of the side enclosure, each set of ventilation openings shall cover a minimum surface area equal to 8% of the overall side enclosure surface area.

- Use UL2572 listed NAC Extenders driven by a N.O. dry contact and includes a N.O. dry contact fault output.
- The UPS should be located in the same room as the equipment it is powering. The UPS must be hardwired to the branch circuit and hardwired to the Rack Unit and any other Device if powered by the UPS. The connection between the UPS and Rack Unit and any other Device shall in conduit and not exceed 20 ft. (6.1 m), or equivalently protected against mechanical damage.
- For Canadian Installations the NAC Extender provide 2 hours of alarm condition. If 2 hours loading exceeds the NAC Extended Battery capacity, the unit needs to be powered by the UPS.

## i.Net Sound Masking Headend Rack Unit User Manual

Lencore's i.Net Sound Masking Headend Rack unit replaces all the bulky headend equipment that that is associated with sound masking systems. With the i.Net Sound Masking Headend Rack unit there is no need for amplifiers, separate equalizers, special switching equipment or matching vendors for compatible product interfaces. The i.Net Sound Masking Headend Rack unit's technology is so sophisticated that it can allow zone additions, modifications, deletions and other changes to the system on the fly, without rewiring. This eliminates the need for running multiple home runs back to the electrical closet or through building risers to create separate or additional zones.

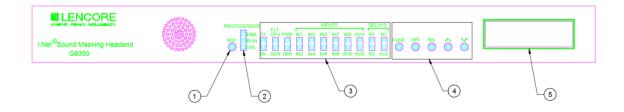
The i.Net Sound Masking Headend Rack unit allows the ability to use up to 255 individual zones for masking. The system's easy to use full one-third octave band equalizer can be adjusted to either individual zones or all zones and provides exceptional fine tuning capabilities.

The creation, modification, addition and deletion of zones for sound masking can be easily controlled using the included Lencore System Manager or through the on-board buttons. No proprietary software needs to be installed on the client's side, eliminating security and migration issues. The Lencore i.Net System is an open platform system. In addition, volume and equalizer settings for sound masking can be programmed through System Manager offering tremendous adjustment and control capabilities with unprecedented flexibility.

# **Features and Capabilities:**

The i.Net Sound Masking Headend includes many built-in features that used to require separately purchased components.

- Front panel buttons. The front panel buttons allow the user to make a number of adjustments to the system without using a computer.
- LCD display. The front panel display is used for displaying a variety of information.
- Protocessor. The Protocessor is used to control the networked system. The Protocessor offers
  exceptional features, solid construction, plus the flexibility to monitor and
  control the sound masking from virtually anywhere.



#### 1. RESET Button

The Reset button is used to make a hardware reset for servicing purposes.

 Protocessor LEDs The Protocessor LED's display the status of the Protocessor.

#### 3. LED Indicators

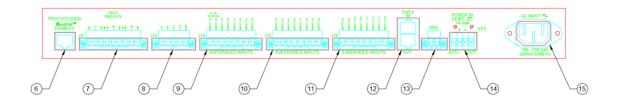
The LED indicators display various conditions and functions such as network activity and relay status. See "Using the System" for detailed information.

#### 4. Switches

The switches are used to make a number of adjustments to the system without using a computer.

#### 5. LCD Display

The LCD displays various diagnostic messages and configuration information about the system.



#### 6. Protocessor

Connect an Ethernet cable to access the Protocessor. (not supervised)

#### 7. Aux Relays

The Aux Relay R1 is used to send a fault to the FACP. The other relays are for future use. (supervised by FACP)

#### 8. RS232

For future use.

#### 9."Inputs 1-4

Supervised Input 1 is used to mute the masking. Connect the FACP mute output here. (supervised)

#### 10. Inputs 5-8

For future use. (supervised)

#### 11. Inputs 9-12

Input 11: UPS AC Fault. Input 12: UPS Battery Fault Inputs 9 &10: Future Use. (supervised)

#### 12. Data In/Out

Connect the Data Out to the first OP Data In. The Data in is for future use. (not supervised)

#### 13. GND

Connect a common audio ground wire from the GND connector to the first OP.

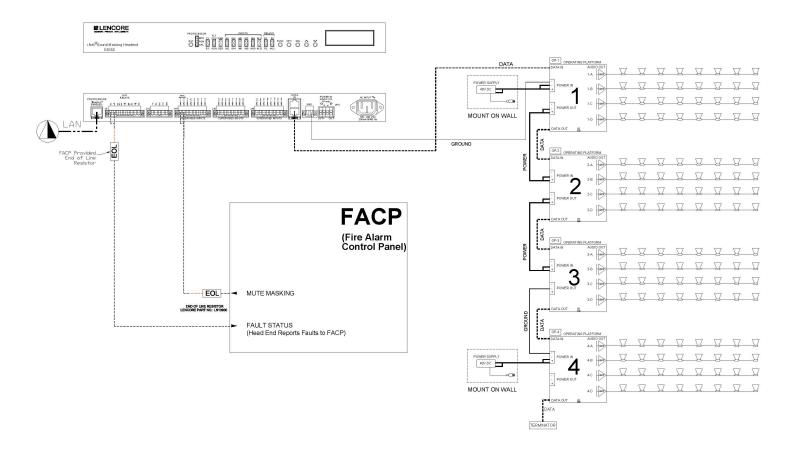
#### 14. UPS Power In

Connect UPS power here or jumpers if a UPS is not used. (not supervised)

#### 15. Power Input

Power cord connector (IEC 60320). 110-240 VAC. (not supervised)

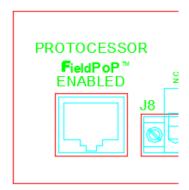
# Wiring



## Wiring

#### **Power and Network connections:**

- Plug the unit into a standard outlet for 120VAC operation using the C13 to 5-15P power cord. For 208VAC operation, plug the unit into an IEC C13 socket using the C13 to C14 power cord.
   The system will be usable in approximately 10 seconds.
- 2. Connect a network cable to the unit's Protocessor input. The Protocessor is the network server. The Protocessor is pre-loaded with Lencore's System Manager. System Manager allows adjustment to the masking characteristics.



### **UPS** connection:

The unit includes a rear panel terminal block for the connection of an optional UPS. The UPS output would connect to the terminal block: +24VDC to pin 2 and 24V COM to pin 3. When a UPS is not used, jumpers In+ to Out+ and In- to Out- must be installed.

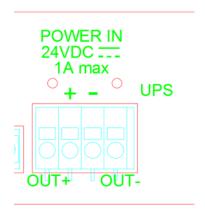
Use a UL 864 listed power supply for the UPS. The UPS must be 24VDC regulated until the power supply batteries are exhausted. Lencore's PSM7A meets these requirements.

Incorporate a safety margin into the calculated amp-hour rating of 20%.

Maximum battery amp hour capacity supported by the charger to be 24 hours minimum.

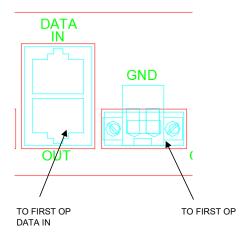
Normal and alarm standby load is 100mA.

For US installations, the alarm time period is 15 minutes and for Canadian installations, the alarm time period is 2 hours.



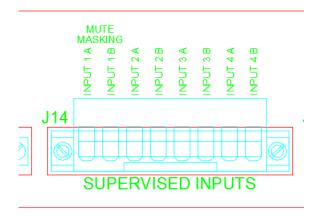
## Data, Audio, and Ground connections:

- 1. Wire the Data Out cable to the first OP's Data In. See the installation and operations manual for the i.Net Rack OP for further wiring of OPs.
- 2. Wire a ground wire from the headend "GND" to the first OP.



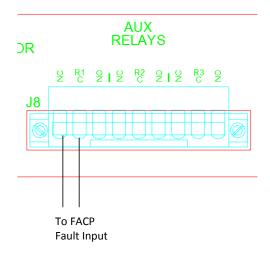
## **Fire Alarm Connections:**

1. Connect the fire alarm panel normally open dry contacts Mute Masking inputs.



# **Relay Connection**

1. Connect the FACP fault input to Aux Relay R1 - NC and C. Relay R1 is energized (open) when no fault exists and de-energized (closed) when a fault is active.



## **Front Panel Switches:**

The switches allow the user to make a number of adjustments to the system without using a computer, although, a computer and System Manager are still required for full control of all functions. A selection can be made by continually pressing and releasing the switch.



The display shows OP operational data:

The upper left part of the display displays the Function. The upper right displays the current Option, within that function. The lower left displays the Channel or Zone # that is related to the function. The lower right displays the value associated with that channel or zone.



The **FUNCTION** button selects the function to be changed. The **OPT** button selects the operation.

The up and down *arrows* increment and decrement the settings.

The **SEL** key is used to select operations.

To use the keypad, first choose the **FUNCTION** of operation. After the function has been selected, use the **OPT** key to select the option. Finally, use the up and down *arrows* to change the value for the function.

## **Options and Functions:**

Function	Option	Action
Masking Valums	OP/Channel	Select
Masking Volume	Zone	Select
Masking Contour	OP/Channel	Select
Wasking Contour	Zone	Select
Mask Mute	OP/Channel Select	
iviask iviute	Zone	Select
Music Volume	OP/Channel	N/A
widsic volume	Zone N/A	N/A
Music Mute	OP/Channel	N/A
iviusic iviute	Zone	N/A
Paging Volume	OP/Channel	OP/Channel N/A
Paging volume	Zone	N/A
Deging Mute	OP/Channel	N/A
Paging Mute	Zone	N/A
Faults	None	Select
I/O Setup	None	Select
Voltages	None	Select-View Only
Neuron Version	None	View Only

## **Operation Examples:**

Masking Volume:

Press the FUNC button until "Mask Vol" is displayed.

#### OP/Channel:

Press the **OPT** button until "OP" is displayed.

Press the **SEL** button until the curser is on the value to change (OP number, channel letter, or volume).

Use the up and down arrows to increment and decrement the selected value.

#### Zone:

Press the **OPT** button until "ZN" is displayed.

Press the **SEL** button until the curser is on the value to change (Zone number or volume). Use the up and down *arrows* to increment and decrement the selected value.

#### Masking Contour:

Press the FUNC button until "Mask Cntr" is displayed.

#### OP/Channel:

Press the **OPT** button until "OP" is displayed.

Press the **SEL** button until the curser is on the value to change (OP number, channel letter, or volume).

Use the up and down arrows to increment and decrement the selected value.

#### Zone:

Press the **OPT** button until "ZN" is displayed.

Press the **SEL** button until the curser is on the value to change (Zone number or volume). Use the up and down *arrows* to increment and decrement the selected value.

#### Masking Mute:

Press the **FUNC** button until "Mask Muter" is displayed.

#### OP/Channel:

Press the **OPT** button until "OP" is displayed.

Press the **SEL** button until the curser is on the value to change (OP number, channel letter, or volume).

Use the up and down arrows to increment and decrement the selected value.

#### 7one

Press the **OPT** button until "ZN" is displayed.

Press the **SEL** button until the curser is on the value to change (Zone number or volume). Use the up and down *arrows* to increment and decrement the selected value.

Music and Paging Functions have no relevance for this unit.

#### Faults:

Press the **FUNC** button until "Faults" is displayed.

Press the **SEL** button until the curser is on the value to change (Clear, Mute, Fault number).

Use the up and down arrows to scroll through the fault list.

If the curser is on Clear or Mute, the up or down arrow will clear or mute the fault.

The **OPT** button has no use for Faults.

#### I/O Setup:

Press the FUNC button until "I/O Setup" is displayed.

#### I/O number:

Press the SEL button until the curser is on the I/O number.

Use the up and down arrows to increment and decrement the I/O number.

#### I/O options:

Press the SEL button until the curser is on the I/O options.

Use the up and down arrows to change the I/O to Supervised, Normal, or Disabled.

Note: A Supervised input must include an EOL (end of line) resistor. A Normal input does not need and EOL resistor.

#### Voltages:

Press the FUNC button until Voltages is displayed.

Press the OPT button to select the various voltages to display.

Note: Voltages cannot be changed, they can only be monitored.

## **Using the System**

## System Reset

In the unlikely event of the unit locking-up, pressing the Reset button will cause the unit to re-boot.

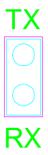


## **Front Panel Indicators**

## **Neuron activity**

The Neuron is a specialized internal microprocessor.

The LEDs labeled TX and RX indicate Neuron activity. These LEDs will be flickering under normal operation.



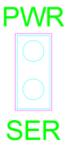
## **FLT**

The FLT LEDs are indicators for system faults. The CPU LED indicates that the internal CPU (microprocessor) is in a fault condition. The GEN LED indicates a general fault condition. When either of these LEDs is on, a system fault has occurred.



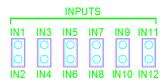
## **PWR/SER**

A green PWR (Power) LED indicates that the internal power supplies are operating. The SER (Serial) LED is on when the serial connection is in use.



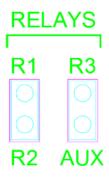
## **INPUTS**

The INPUTS LEDs are indicators for system inputs. IN1 represents the Mute masking input. A blinking input LED indicates a fault has occurred. IN2-IN12 are for future use.



## Relays

Relay R1 LED indicates a general fault. When the LED is on, no fault exists and Relay R1 is energized. When the LED is off, a fault has occurred and Relay R1 is de-energized. R2, R3, and AUX LEDs are for future use.



#### **Protocessor**

The Protocessor LEDs indicate the state of the Protocessor.

The ERR LED will go on solid 15 seconds after power up. It will turn off after 5 seconds. A steady red light will indicate there is a system error on the unit. The RUN LED will start flashing 20 seconds after power indicating normal operation. The SPL LED will be off for normal operation.

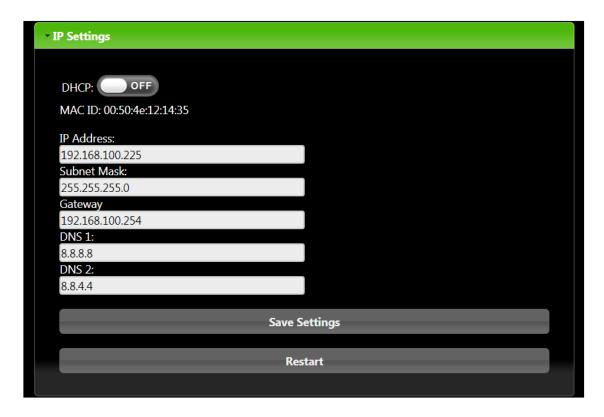


## **Setting the IP Settings**

- 1. If using the SMC Toolbox application, follow the steps above to change or view IP settings
- 2. If not using the SMC Toolbox application, power on the Head End and wait about 2 minutes. (The AUX LED will be flashing while booting up, and solid once complete.
- 3. Click the "Func" button on the front of the Head End until you get to the "IP Info" section.
- 4. The current IP address will be displayed.
- 5. Use the "Opt" button to cycle through additional IP settings including: Subnet, Gateway, and MAC ID.
- 6. We can also change the IP settings by navigating the IP address displayed on the Head End display.

# Changing the IP Settings using the System Manager Webpages

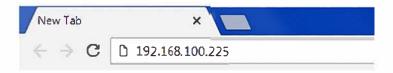
- 1. Make sure your static IP is set on your PC and you have internet connection going from your PC to the "Protocessor Field Pop Enabled" port on the back of the Headend. (See Interfacing with the protonode section of the manual for further instructions).
- 2. Open a web browser and enter the Headend IP address.
- 3. On the Lencore landing page, select the "Systems Setting" option.



NOTE: Here you can view or change the IP settings for the Head End. Be sure to hit "Save Settings" after making changes. You will also need to restart for changes to take effect. To confirm settings wait 2 minutes after hitting "Restart" then using the Head End display navigate to the IP settings section.

# **Configuring The Time Settings**

1) Open your web browser and enter in the IP address of the Head End (Default IP - 192.168.100.225)



2) On the Lencore Landing page, click the "System Settings" options .

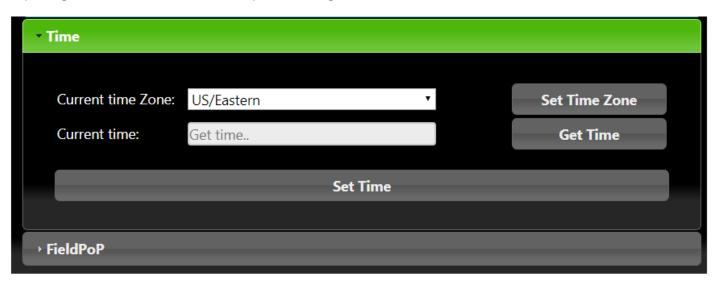


3) Log in to the System Settings pages. (Default Username and Password: comfort/comfort)

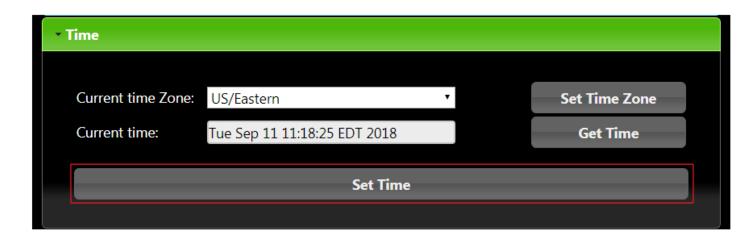


# **Configuring The Time Settings**

4) Navigate to the "Time" tab to view and edit your time settings.



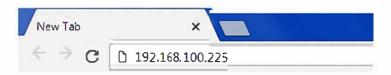
5) Use the drop down to select your time zone. Once selected hit the "Set Time Zone" button. You can verify that your using the correct time zone by hitting the "Get Time" button. Time should match your current time. Hit the "Set Time" button once all settings are verified.



NOTE: Be sure to hit "Set Time" after making ANY changes, to save settings.

# **Configuring The Fault Email Settings**

1) Open your web browser and enter in the IP address of the Head End (Default IP - 192.168.100.225)



2) On the Lencore Landing page, click the "System Settings" options .



3) Log in to the System Settings pages. (Default Username and Password: comfort/comfort)



## **Configuring The Fault Email Settings**

4) Navigate to the "Fault Email" tab to view and edit your fault email settings. <u>NOTE: SMTP SERVER SETTINGS</u> <u>MUST BE CORRECT TO SEND FAULT EMAILS. SEE SMTP SERVER SETTINGS SECTION OF THIS MANUAL FOR</u> <u>REFERENCE.</u>



5) If you wish to send an email when a fault has occurred on the Head End, you must first enable this option using the slider on the top right of this pane. Content for emails will look like the following with "Content" left blank. Feel free to add any additional messaging desired.

#### **Most Recent Fault:**

**Gen 1-53** Fault Occurred (Open circuit on digital input 11)

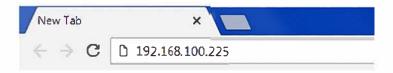
#### **Full Fault List:**

Gen 1-3 (Open circuit on digital input 1)
Gen 1-8 (Open circuit on digital input 2)
Gen 1-13 (Open circuit on digital input 3)
Gen 1-18 (Open circuit on digital input 4)
Gen 1-23 (Open circuit on digital input 5)
Gen 1-28 (Open circuit on digital input 6)
Gen 1-33 (Open circuit on digital input 7)
Gen 1-38 (Open circuit on digital input 8)
Gen 1-43 (Open circuit on digital input 9)
Gen 1-48 (Open circuit on digital input 10)
Gen 1-53 (Open circuit on digital input 11)
Gen 1-58 (Open circuit on digital input 12)

NOTE: Be sure to hit "Save Settings" after making ANY changes.

# **Configuring The SMTP Settings**

1) Open your web browser and enter in the IP address of the Head End (Default IP - 192.168.100.225)



2) On the Lencore Landing page, click the "System Settings" options .

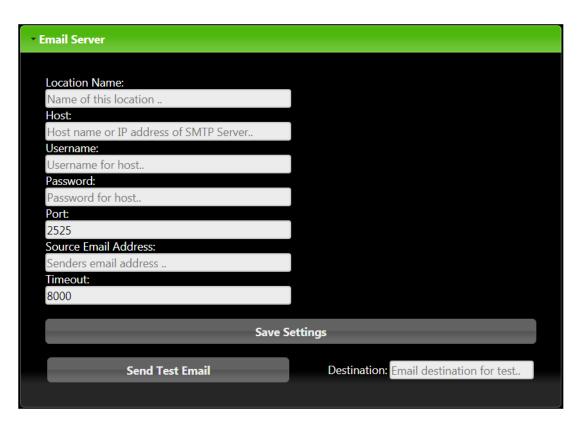


3) Log in to the System Settings pages. (Default Username and Password: comfort/comfort)

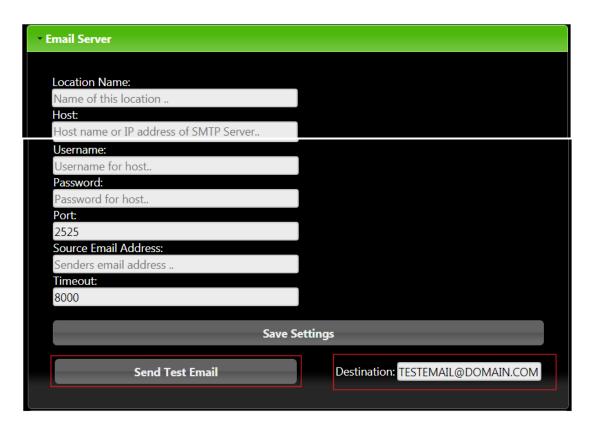


# **Configuring The SMTP Settings**

4) Navigate to the "Email Server" tab to view and edit your SMTP settings.



5) Once you believe that all your SMTP settings are correct, you can send a test email to verify settings. Enter in a valid email address under the "Destination" section and click the "Send Test Email' to send.



#### **Testing Procedure**

Equipment should only be tested by qualified trained personnel. These instructions are meant as a guide to what testing should take place; it is not an instruction on how to complete the testing. Refer to the Operations, System Manager, and Configurator manuals for detailed information.

Testing should be performed monthly or more frequently if necessary.

- 1. Test any output relays that are being used.
- 2. Using System Manager, assure all OPs are on-line, speaker counts are correct
- 3. Verify Faults in Unit trigger a fault in FACP
- 4. Verify FACP Mute Masking functions correctly

#### **Maintenance Procedure**

Equipment should only be inspected and maintained by qualified trained personnel. These instructions are meant as a guide to what actions should take place; it is not an instruction on how to complete the activities.

Maintenance should be performed monthly or more frequently if necessary.

- 1. Inspect and clean if necessary all air vent openings.
- 2. Inspect and replace if necessary the AC power cord for exposed wires, torn or worn insulation, or a broken cord retaining clamp.
- 3. Ensure that all cables and wires are properly seated in their respective connectors.

#### NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control and Communication Units for Mass Notification Systems, UL2572, certain programming features or options must be limited to specific values or not used at all as indicated below.

Program feature or option	Permitted in UL2572? (Y/N)	Possible settings	Settings permitted in UL2572

Revision Level	Revision Date	Description of Revision	Revision Author
Α	6/10/18	Initial Release	M. Cook
В	8/30/18	Added various notes per ETL	M. Cook
С	9/18/18	Added various text for UL864	M. Cook
D	10/1/18	Added configuration settings	T. Smith
Е	7/23/20	Changed password	M. Cook

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