mercury NOTIFICATIONS

INSTALLATION MANUAL

Talk Back Communicator

M-DIM-08254-0B

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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.
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) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10) Only use attachments/accessories specified by the manufacturer.
11) 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.
12) **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

The mains plug or appliance coupler shall remain readily operable.

System: G8254 Talk Back Communicator

- At least one UPS and batteries should be used to provide secondary power supply for emergency purposes

- The G8254 should be installed using:

    1) Use four 6-32 x 1/2, black, stainless steel pan-head machine screws to mount the unit to a junction box at least 2-1/8" deep.
    Note: An NRTL (UL/ETL) listed double gang box must be used.

- The system is provided with a Communication Security Level 0, which indicates no Security Level employed.

- The system is not to be used in buildings providing Suppression Service (Systems using Halon, etc). Sprinkled systems are allowed.

General operation:

The Talk Back unit is a two-way communications device that allows for dialog between a remote area, such as a classroom or stairwell, and a central monitoring area, such as a security office. It is not a typical intercom, and as such does not communicate between Talk Back units. The typical use case is one in which there are speakers installed in the area of the Talk Back unit and the security office. When the user presses the “Talk” button on the Talk Back unit a special page is generated on zone 100. The speakers in the security office are part of zone 100 and will then play the audio from the Talk Back unit. After the user releases the button, the page is ended. The security office then does a zone override page to the zone that the Talk Back unit is in. In this way the security office page only goes to the speakers in the Talk Back area.

To prevent other Talk Back units from paging at the same time, the “Talk” button will go red on all other Talk Back units, and paging is disabled on those units. Only one dialog can happen at any given time. At the headend, the zone override page is handled by the six “Zone Override” buttons.

The Talk-back unit works with the G8220 Headend rack unit.

Features and Capabilities:

- **Page.** Pressing and holding the TALK button initiates a page to a central monitoring area (zone 100)
- **Panic.** Pressing the panic button sends a trigger to the headend to alert the security staff of an issue in a particular area.
- **Occupancy Sensor.** Embedded in the unit is a Passive Infrared Sensor (PIR) that monitors the area around the Talk Back unit and keeps a historical log of activity.
- **High Ambient Noise Sensing.** The Talk Back unit includes a microphone that is specially designed to detect very loud noises such as gun shots or other abnormally loud noises.
- **Microphone Peak Detection.** Both microphones have peak detection circuits that allow the headend to monitor peak values for a given time period.
- **Variable gain.** Both microphones have variable gain circuits that allow the headend to choose whether to use standard gains or ultra-high sensitivity mode.
- **Speaker Relay.** The speaker relay connection goes to a special Mercury Speaker that is relay activated.

Installation Details:

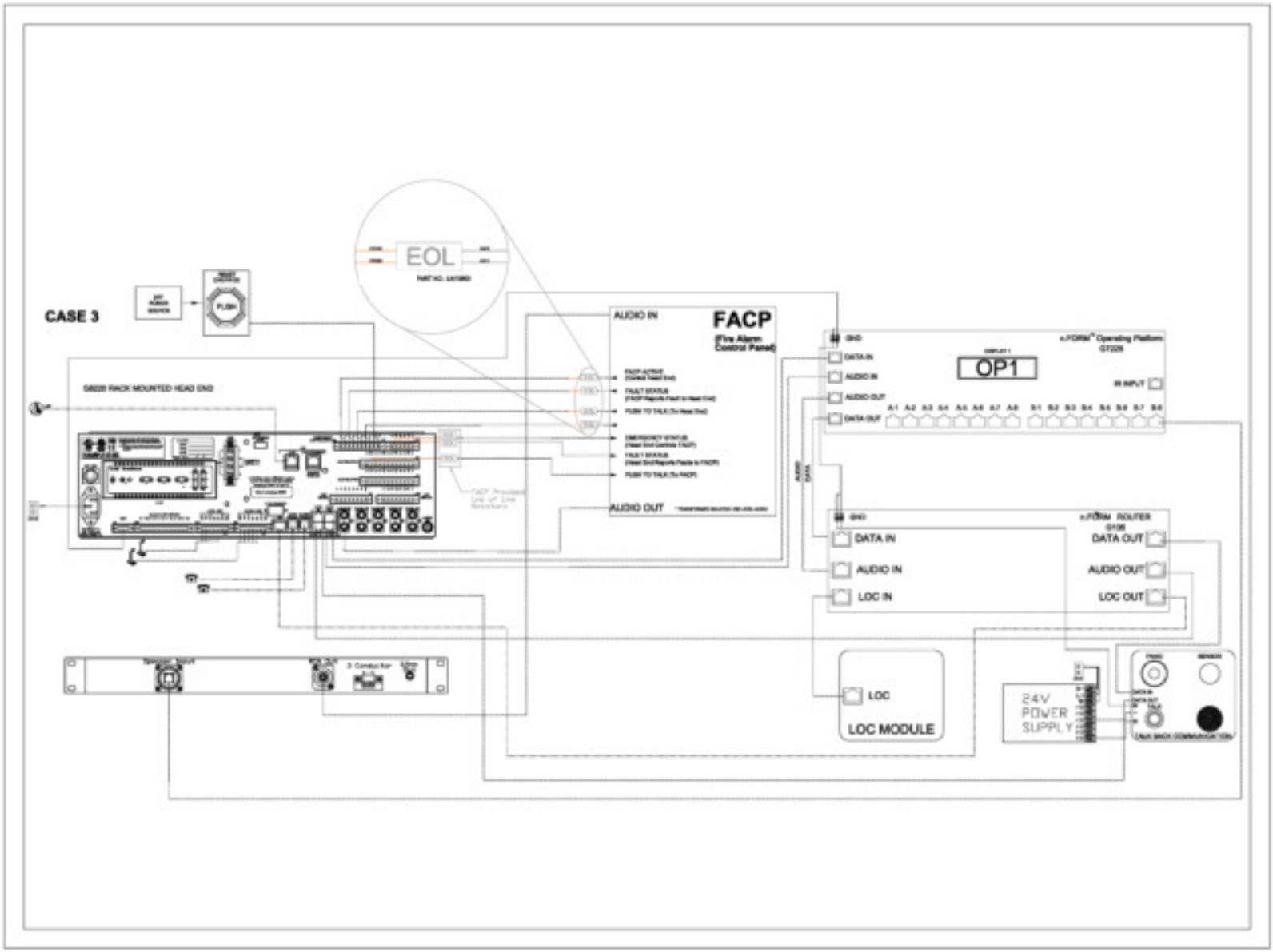
The Talk Back unit is installed in a standard 4x4 NRTL (UL/ETL) listed double gang switch box using four 6-32 x ½ black stainless-steel pan-head screws. A switch box is required as the 4 mounting screws line up with holes that are only present on a switch box. The box needs to be at least 2-1/8" deep. The cabling must exit the junction box on the lower right-hand corner of the bottom of the box. Sufficient cable service loop must be present to allow the cables to be connected to the Talk Back unit and then fed out of the box as the Talk Back unit is mounted. When an in-wall switch box is used, this extra cable can be easily fed into the wall. If a surface installation is done there typically needs to be a pull box, j-box or other scheme employed to allow for cable to be pulled in and out of the switch box during installation and removal. An example could be a secondary 4x4 j-box below the Talk Back unit, connected to the switchbox with a suitable nipple.

The Talk Back units requires a 24v dc power feed from either a supplied HRP-150-24 power supply or a PSM7A battery backed up 24v supply. With either supply a total of 15 units can be fed off one supply (assuming 16AWG wire at 400 ft max from power supply to the last Talk Back unit). The ground must be maintained on the Talk Back units, the same way Operating Platforms are wired.

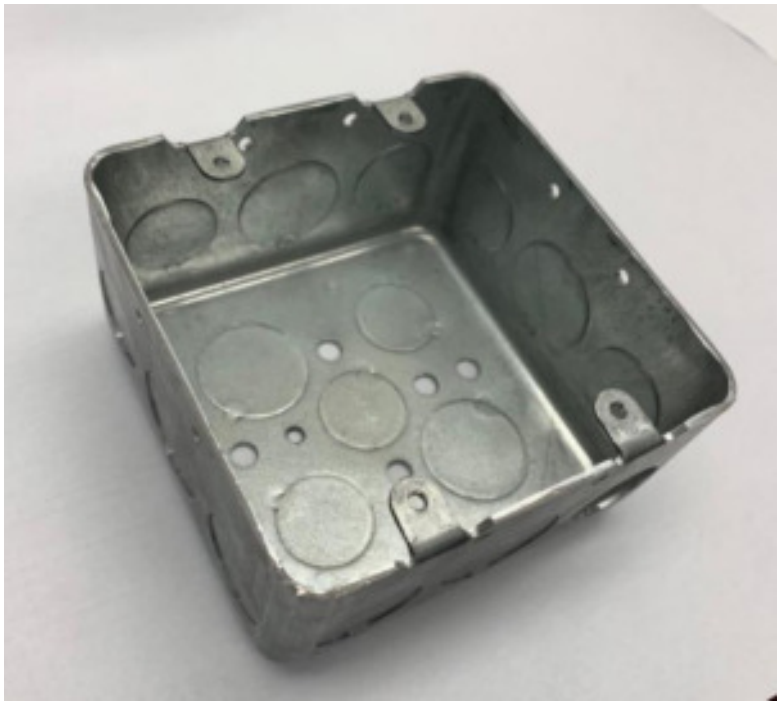
In addition to power, the Talk Back sits on the system databus, and as such has a data in and data out connection. Data cable: The maximum length of the Data cable is 3000 feet from the head-end to the LAST device connected to the Data cable. A device can be an OP or talk-back module. The distance from talk-back to talk-back is not relevant if the previous statement is met. To extend the data cable, adding a router after the LAST device allows the Data cable to run another 3000 feet from the router.

See the flow diagram below (figure 1).

Flow diagram



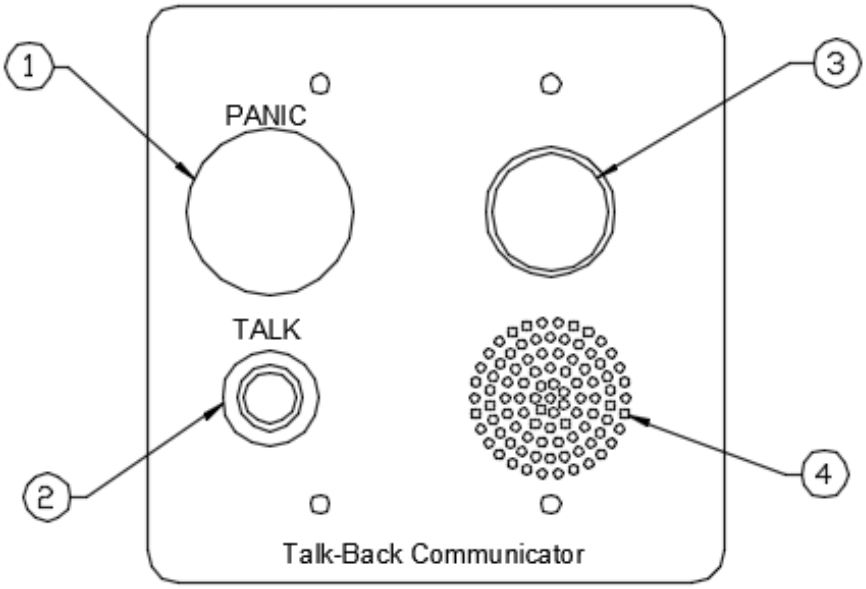
Typical 4x4 junction box:



Talk Back mounted in the junction box:

Overview

Front Plate



1. **PANIC button**
   The panic button can be pressed to send a page alert to the central monitoring area.

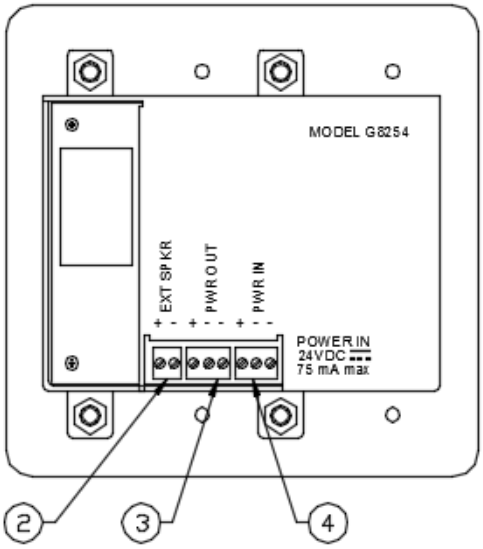
2. **TALK button**
   The talk button can be pressed to make a page to the central monitoring area.

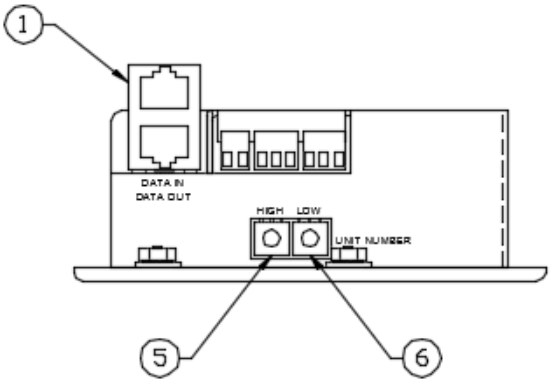
3. **Motion Sensor**
   The motion sensor senses motion in the room and can be monitored by the central monitoring area.

4. **Microphone**
   While pressing the talk button, speak into the microphone to make a page to the central monitoring area.

Overview

Rear Plate





1. **DATA IN/OUT ports**
   Connect the Data out port to the next OP or Talk Back module.
   The Data in port receives the data cable from the previous OP or Talk Back module.
   (supervised by head-end)

2. **EXT SPKR** Connect a special speaker (optional) to this connector.
   (not supervised)

3. **PWR OUT**
   The power out connector is used to power additional Talk Back units.
   (supervised BY UPS)

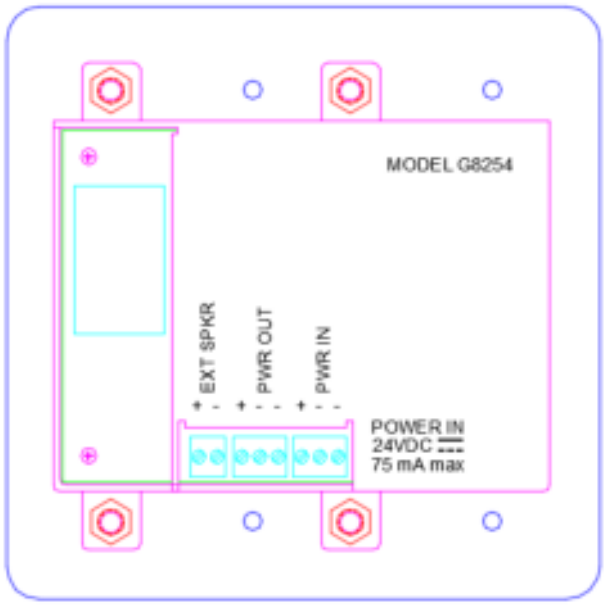
4. **PWR IN**
   The power in connector receives power from an external 24VDC power supply.
   (supervised by UPS)

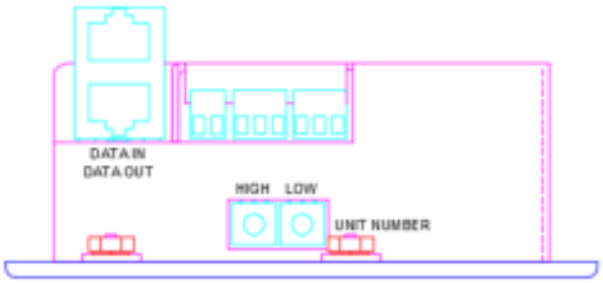
5. **UNIT NUMBER (HIGH)**
   The high unit number sets the sets first digit of the unit number.

6. **UNIT NUMBER (LOW)**
   The low unit number sets the second digit of the unit number.

Wiring

Power and Network connections:





1. The unit is powered by an external 24VDC power supply. The external power supply's positive 24VDC output is wired to the Talk Back's positive (+) terminal on the PWR IN terminal block The external power supply's negative 24VDC output is wired to the Talk Back's negative (-) terminal on the PWR IN terminal block.

2. Connect the data cable from a previous OP DATA OUT or router DATA OUT to the Talk Back's DATA IN port Connect a cable from the Talk Back's DATA OUT port to the next OP DATA IN or to the next Talk Back module's DATA IN or to the head-end DATA IN in connector.

3. The PWR OUT terminal block can be used to power additional Talk Back units. A total of 65 units can be powered by the same external 24VDC power supply.

Wiring (continued)

Power and Network connections:

4. Connect a wire from the previous OP or router negative (-) terminal to either of the Talk Back PWR IN negative (-) terminals.

5. The EXT SPKR is available to connect a special external speaker. Do not attempt to connects any other speaker to this connection or damage to the Talk Back module may occur.

Wiring Type and Gauge:

Data In/Out, Audio In/Out, LOC In /Out: Cat5e

FACP wiring: 16 AWG

24VDC power: 16 AWG

GND: 16 AWG

- All wire to be UL listed, 150V or greater

* Any wire installed in the plenum must be plenum rated.

UPS connection:

The UPS output would connect to the terminal block: +24VDC to pin "+" and 24V COM to either pin "-". Use a UL 864 listed power supply for the UPS. The UPS must be 24VDC regulated until the power supply batteries are exhausted. The 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 75mA. For US installations, the alarm time period is 15 minutes and for Canadian installations, the alarm time period is 2 hours.

Configuring the System

The system must be configured before the Talk Back module can be used.

1. Set all Talk Back unit numbers to be a unique number from each other.
2. Power cycle the unit for the changes to take effect.

System Manager Setup:
To facilitate using the TalkBack units, it will be necessary to setup several paging zones. When Talkbacks are activated by pressing the “TALK” button, they will do a page to zone 100. Therefore zone 100 should be for the speakers in the central area, such as a security office or operations center. The central area will also either have the headend, or the all call microphone, for paging back to each talkback unit. When the central area wants to page a particular room it will do so by doing a Zone Override of the normal all call page. This zone override can be done via the front panel of the headend, for up to 6 zones, or via Command Center for larger zone counts. This means that the speakers in each room, that contain a talkback, must be set to unique zones as well. For instance, Zone 1 could be all the speakers in Room 1, zone 2 for all speakers in room 2, etc. For each zone, a source must be selected for the paging audio. That source must be Source 6, since we will be doing a zone override of the All Call source. Note- The source that is used with Zone 100 must be the one setup in the Headend Configurator for the Talkback.

Command Center setup:
The “Rooms.csv” file in the command center Program Data folder must be updated to have the preferred room name along with the paging zone for that room. This will provide the zone override buttons with the correct text. Refer to the Command Center user guide for more information.

Using the System

Paging

Press and hold the TALK button to make a page to the central monitoring area (zone 100). Release the TALK button to end the page. If the TALK button is lighted red, another user is currently making a page. The TALK button must be green to initiate a page.

Panic:

Pressing and releasing the panic button sends a trigger to the headend to alert the security staff of an issue in a particular area. At that point the security staff would again do a zone directed page to that Talk Back unit. Once the panic button is pressed a pulsing tone would be heard at the Talk Back unit, until the security office does the page.

Occupancy sensor:

Embedded in the unit is a Passive Infrared Sensor (PIR) that monitors the area around the Talk Back unit and keeps a historical log of activity. From the headend you can monitor both live and historical motion activity. This is helpful in locating areas of the building with human activity.

High Ambient Noise Sensing:

The Talk Back unit has two microphones. One that is used for normal speech for paging purposes, as described above, and one that is specially designed to detect very loud noises such as gun shots or other abnormal noises. When a noise in made in the vicinity of the Talk Back unit, the detection circuit associated with the special microphone triggers an event to the headend. This could yield a call by the security staff via the paging described above, or a in person investigation, or both.

Using the System (continued)

Microphone peak detection:

Both microphones have peak detection circuits that allow the headend to monitor peak values for a given time period.

Variable gain:

Both microphones have variable gain circuits that allow the headend to choose whether to use standard gains of ultra-high sensitivity mode, which allows the security team to listen in to each Talk Back unit to locate small sounds within the space. This feature works hand-in-hand with a remote Push-To-Talk feature that will activate the microphone in a given room, even if no one presses the button. This is highly beneficial in situations where people may be hiding in the area, and motion detection may not pick them up, but audible noise can.

Speaker relay:

The speaker relay connection goes to a special Mercury Speaker that is relay activated. This connection provides a switched 24vdc signal that either activates the local speaker or not. This signal is triggered by the security office page to the given room. This will allow a signal speaker on a channel of 8 speakers to be enabled, based on the zone/room page. This allows a single OP channel to service multiple rooms and still be able to enable a single speaker on the run.

System Usage:

When someone presses the TALK button on the device it will do a zone 100 page in the security area. A page is only possible if the TALK button is green. When a given Talkback unit is paging, all other units will have their TALK button turn red so they cannot page. In addition, when any page is in use, or the Headend is overridden by the FACP, all Talkback units are locked out, and the TALK button is red.
As soon as the user starts talking, the Command Center application will have a Yellow illuminated button on the Zone Override page, for that given room. The TALK button will flash indicating that their call is waiting on someone to respond. The person in the central area(security office), will then activate the highlighted button, which will do a zone override for 30 seconds. The button will flash during the zone override, until the page is completed. During that time a Mic page will be done that will be directed back to the room that pressed the TALK button. As soon as this page is made, the TALK button will stop flashing indicating that the caller was responded to.
If the room user presses the panic button, the associated button in Command Center will again light up, this time in Red, along with an alert tone. The Security official will then press the red button to once again do a zone override to talk to that specific room.

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 the Talk button and microphone proper paging, clarity, and volume.
2. Test the Panic button for proper function.
3. Test the external speaker output relay for proper operation if it is being used.
4. Confirm that the PIR motion sensor is functioning.

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, the microphone openings.
2. Inspect and clean if necessary, the PIR motion sensor.
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
A	11/11/2020	Initial Release	G. Dahl

Mercury Notifications LLC

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