

# RAM-300LCD Series

## Remote Annunciator





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# 1.0 Introduction

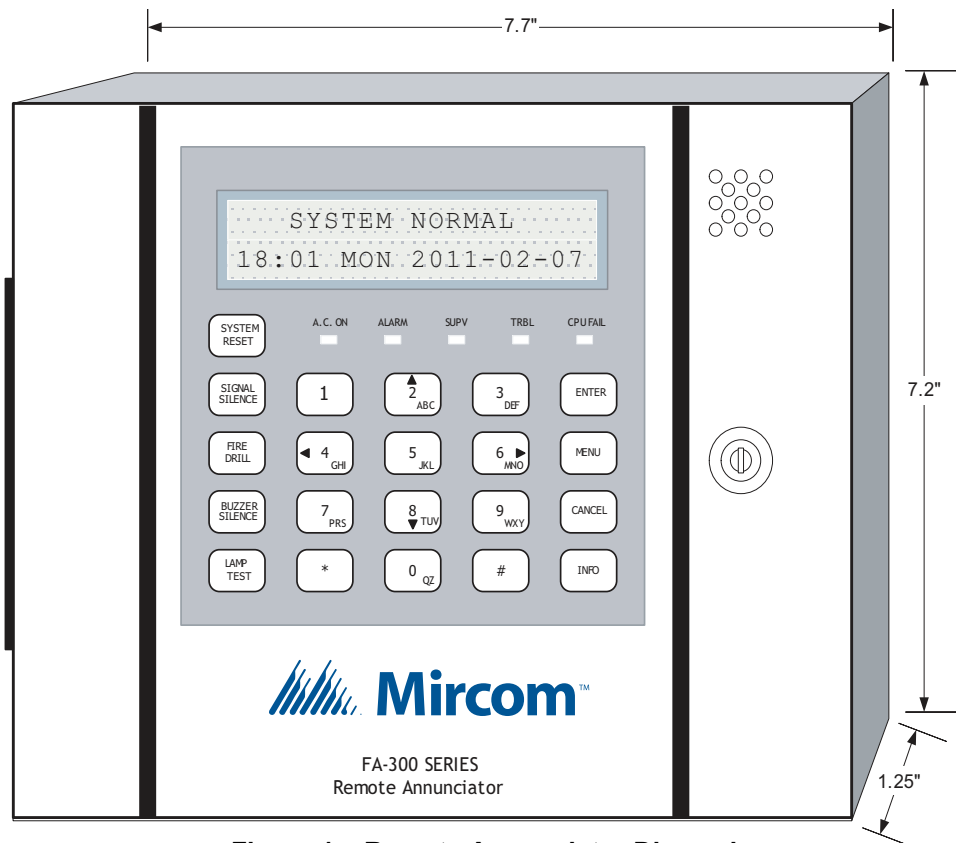
The RAM-300LCD is a remote annunciator used for the FA-300 Series and FX-350/351 Series Fire Alarm Panels. It provides remote access to the fire alarm panel.



**Note:** Configuration of the FA-300 Series and FX-350/351 Series fire alarm panels from this remote annunciator is not allowed.

The RAM-300LCD has an LCD display, common feature LEDs and pushbuttons, as well as an alpha numeric keypad for the LCD.

The RAM-300LCD comes complete with an enclosure and can be surface mounted.



**Figure 1 Remote Annunciator Dimensions**

Each RAM-300LCD has its own address. Addresses available are 1 to and including 7. The buttons on the left side may be individually disabled if required, by setting DIP Switch SW31, see Functional Setup section following.

This annunciator may be selected to operate as an ancillary device using DIP Switch SW31-6 to disable all buttons except, Lamp Test, Buzzer Silence, Info and Arrow Buttons.



**Note:** This ancillary device option, if selected takes priority over any other selections made on DIP Switch SW31.

## 2.0 Mechanical Installation

To mount the RAM-300LCD open the front door, remove the dead front plate and mount the backbox to the wall using the four screws provided. This enclosure may also be mounted to a 4" square electrical box. There are two conduit areas provided at the bottom center of the enclosure. With the dead front plate removed, you may do the functional setup and wiring before replacing the dead front, see following sections.

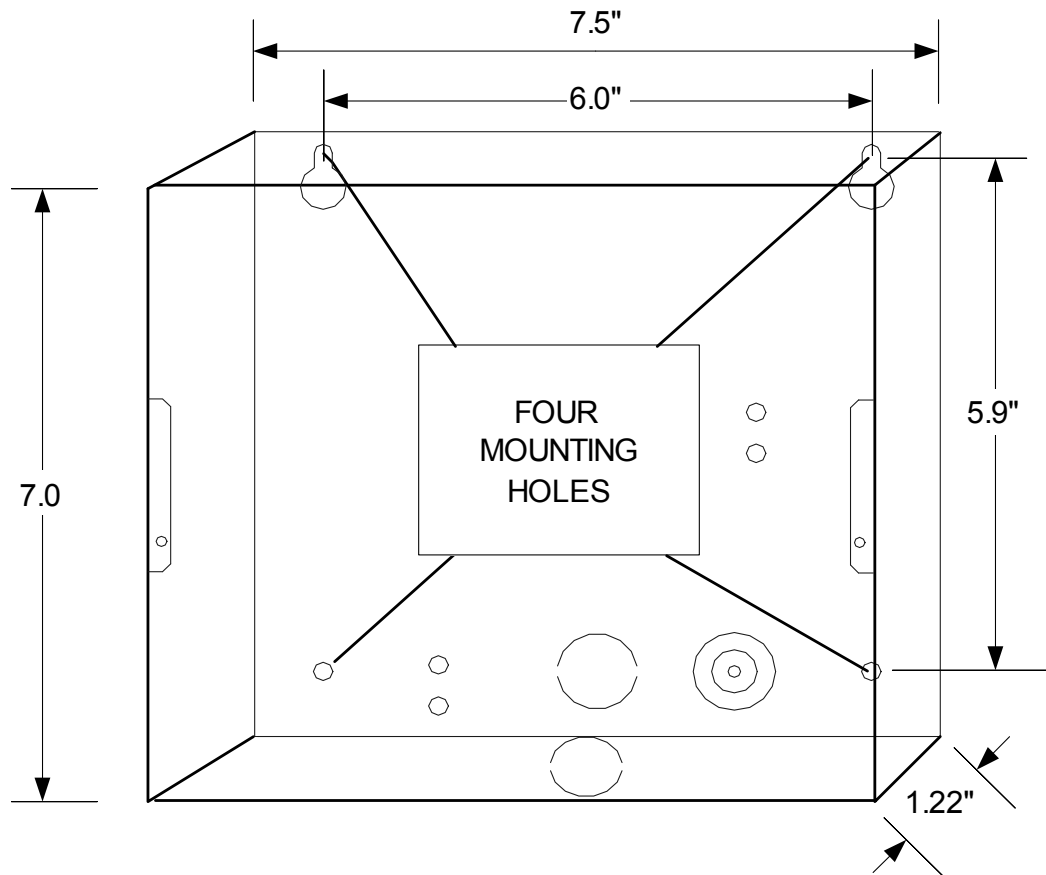
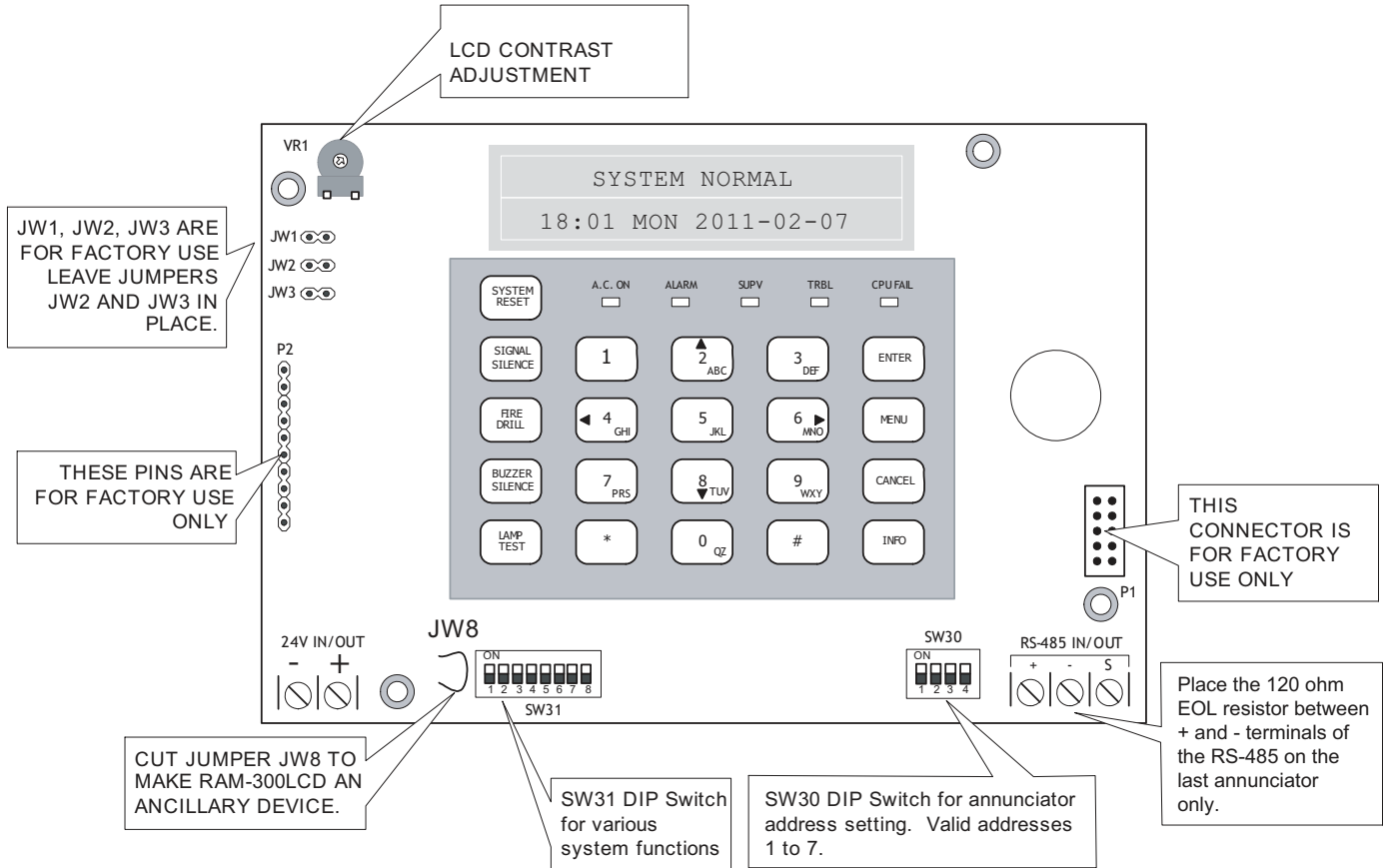


Figure 2 Mechanical Installation

# 3.0 Functional Setup



**Figure 3 Annunciator Component Descriptions**

## 3.1 Jumpers

**Table 1 Jumpers**

Jumper	Jumper Function
JW1	FACTORY USE ONLY (JUMPER OFF)
JW2	FACTORY USE ONLY (JUMPER INSTALLED)
JW3	FACTORY USE ONLY (JUMPER INSTALLED)
JW8	CUT jumper to set the RAM-300LCD as an ancillary device. Use NP-2051 blank labels to cover the System Reset, Signal Silence, Fire Drill, Enter, Menu and Cancel buttons for the Ancillary Device Feature. Only Buzzer Silence, Lamp Test and Info are used.

## 3.2 Potentiometer

VR1 is a potentiometer used for LCD contrast adjustment and is located in the top left corner of the RAM-300LCD board.

### 3.3 DIP Switches

There are two DIP switches to be set. SW30 is found at the bottom right corner of the board and is used to select the annunciator address. Valid addresses are 1 to 6 inclusive for FA-300 Series, 1 to 7 for FX-350/351. Set address as follows:

**Table 2 RAM-300LCD Address DIP Switch Setup**

Address	SW30-1	SW30-2	SW30-3
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7 (FX-350/351)	ON	ON	ON



**Note:** SW30-4 DIP switch is not used.



**Note:** For the FX-350/351 Series Fire Alarm Panels, if the number of annunciators programmed is 5, then the first five addresses (1 to 5 inclusive) must be assigned to the RAM-300LCD annunciators.

DIP switch SW31 is found at the bottom left hand corner and is used to select a number of features. DIP switch SW31 is set as follows:

**Table 3 DIP switch SW31 settings**

DIP Switch SW31	Position	Function
1	ON	Disable System Reset Button
1	OFF	Enable System Reset Button
2	ON	Disable Signal Silence Button
2	OFF	Enable Signal Silence Button
3	ON	Disable Fire Drill Button
3	OFF	Enable Fire Drill Button
4	ON	Disable Lamp Test Button
4	OFF	Enable Lamp Test Button
5	ON	Disable Buzzer Silence Button
5	OFF	Enable Buzzer Silence Button
6	NOT USED	
7	ON	16 bit checksum (for FX-350/351 panels)
7	OFF	8 bit checksum (for FA-300 Series panels)
8	NOT USED	



## 4.0 Wiring

To wire the RAM-300LCD, you must first remove the dead front plate. Wire from the last RAM-300LCD to the next RAM-300LCD and so on; then from the first RAM-300LCD to the Fire Alarm Panel. There are only two connections to be made, one for power and the RS-485 loop. Replace the dead front plate once all functional setup and wiring is complete.

The **RS-485 Wiring** to the RAM-300LCD is recommended to be **Twisted Shielded Pair**. The wire gauge may be

- 22 AWG up to 2000 ft.
- 20 AWG up to 4000 ft.

The 24V DC field wiring needs to be of an appropriate gauge for the number of annunciators and the total wiring run length. See Current Drain for Battery Calculations on page 11 and calculate the *Maximum* current for all annunciators summed together.



**Note:** All circuits are power limited and must use type FPL, FPLR or FPLP Power Limited Cable.



**Attention:** Accidentally connecting any of the 24V DC wires to the RS-485 wiring will result in damage to the Annunciator and/or to the Fire Alarm Control Panel to which it is connected.

**Table 4 Maximum Wiring Run to Last Annunciator**

Max for all Annunciators									Max Loop Resistance
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft	m	ft	m	ft	m	ft	m	Ohms
0.12	1180	360	1850	567	3000	915	4250	1296	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	850	259	3
0.90	156	47	250	76	400	122	570	174	2
1.20	118	36	185	56	300	91	425	129	1.5
1.50	94	29	150	46	240	73	343	105	1.2
1.70	78	24	125	38	200	61	285	87	1.0

The RAM-300LCD is wired as shown below. Additional RAM-300LCDs are wired in the same manner, make sure **ONLY** the last RAM-300LCD has the 120 ohm E.O.L. resistor connected to the RS-485 positive and negative terminals.

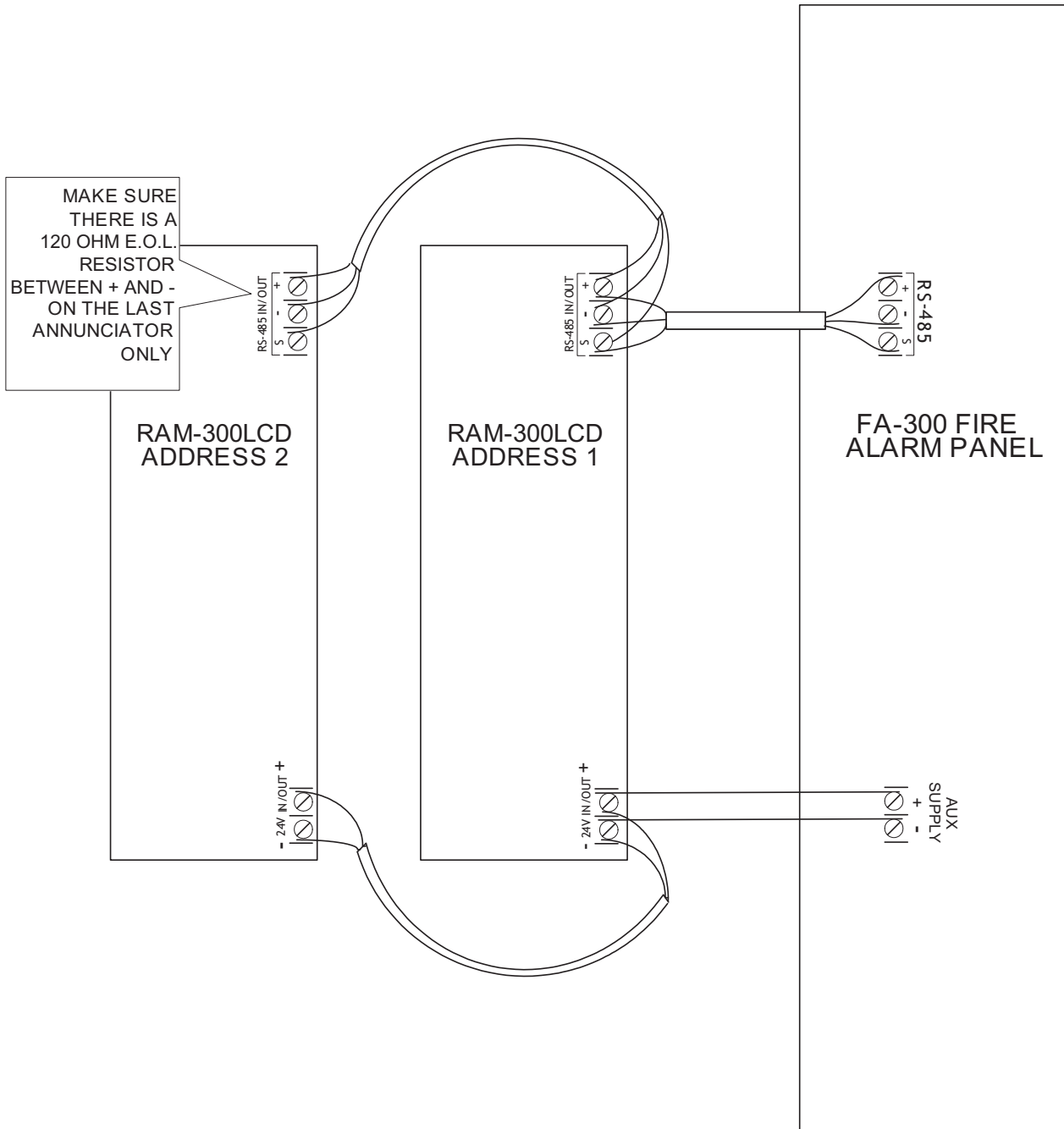


Figure 4 RAM-300LCD Wiring

## 5.0 Specifications & Features

### 5.1 Enclosure

Enclosure may be mounted on a 4" square electrical box or on a wall.

### 5.2 Electrical Specifications

- 24 VDC nominal voltage
- LCD Display, Pushbutton Controls and LED indicators.
- Local Buzzer, Indicators (AC-On, Alarm, Supervisory, Trouble and CPU Fail), and Controls (System Reset, Signal Silence, Fire Drill, Buzzer Silence and Lamp Test.).
- Annunciation of up to 16 Points.
- Not Expandable.
- Standby 56 mA Max., Alarm 65 mA Max.

### 5.3 Current Drain for Battery Calculations

The maximum normal current drain will be during Lamp Test when all lamps are illuminated on one chassis at a time. Thus the currents are:

- **Normal Standby** =56 mA
- **Maximum**=65 mA

The **Normal Standby Current** is used for battery size calculations (see the FA-300 Series or FX-350/351 Series Fire Alarm Control Panel manual for battery calculations) and includes the current drain for the Trouble Buzzer, Trouble LED, and one Alarm LED. The **Maximum Current** is used to calculate the wire size (see *Wiring* section above).

### 5.4 Environmental Specifications

This annunciator is intended for indoor use only.

## 6.0 Operating Instructions

**Normal** All indicators are normally OFF except for the green A.C. ON light which illuminates steadily.

**Alarm** Operate Alarm Initiating Devices to activate Indicating Appliances. Signals will sound, common alarm will illuminate red.

**Silencing of Alarm** Press Signal Silence button momentarily to silence all audible signals.



**Note:** The signal silencing function may be inhibited for up to one minute. The Signal silence button will not operate until the inhibit period has expired.

**Waterflow** Indicating appliances and other output circuits that are activated in response to an alarm initiated by a designated Waterflow Zone cannot be silenced (manual or automatic).

**Supervisory** Activation of any initiating devices for supervisory will sound the buzzer continuously. The Common supervisory indicator will illuminate amber (steady). The Common Supervisory indicator remains "ON" when the buzzer is silenced.

**System Reset** Press the Reset button momentarily to restore normal operation. All alarm indicators will extinguish & *all latched functions are restored*.

**Trouble** Any system trouble will sound the buzzer intermittently and common Trouble indicator will flash amber until the fault is corrected. Specific types of trouble will be indicated by the LCD display by pressing the INFO button. Call for service.

**Fire Drill** Press the Fire Drill button momentarily to sound all audible signals without initiating an alarm. Press the button again for normal system operation. **Note:** *Auxiliary relays will not operate when Fire Drill is operated.*

**Lamp Test** Press the Lamp Test button momentarily to test all indicators except the CPU Fail LED. All indicators should be lit and buzzer will sound. Holding down this button will display the firmware version.

**CPU Fail LED** Will illuminate amber for an onboard CPU error. In addition, the buzzer sounds steadily until the fault is corrected.

### To test the CPU Fail LED

1. Disconnect power from the RAM-300LCD.
  2. Connect the power to the RAM-300LCD as described in section 4.0 on page 9.
- If the CPU Fail LED is functioning properly, it will flash once when the RAM-300LCD powers up.

**Menu Button** Press the Menu button to access the associated FA-300 Series Fire Alarm Panel. The Menu button operates as it does on the main FA-300 Series Fire Alarm Panel, refer to the fire alarm manual for further explanation. Use the keypad arrow keys (2, 4, 6 and 8) to scroll through the menu. Configuration of the fire alarm panel cannot be accessed from the RAM-300LCD. The Menu button does not operate for the FX-350/351 Series Fire Alarm Panels.

**Enter, Cancel and Info Buttons** The Enter and Cancel buttons are used to input and erase some data for the fire alarm panel and the Info button is used to view the fire alarm panel logs. The Enter and Cancel buttons do not operate for the FX-350/351 Series Fire Alarm Panels.

**Keypad** The numbered keys and/or letter keys function as they do at the FA-300 Series Fire Alarm Panel, refer to the fire alarm manual for further explanation. The keypad does not operate for the FX-350/351 Series Fire Alarm Panels.

## 7.0 Warranty and Warning Information

### WARNING!

Please read this document **CAREFULLY**, as it contains important warnings, life-safety, and practical information about all products manufactured by the Mircom Group of Companies, including Mircom and Secutron branded products, which shall include without limitation all fire alarm, nurse call, building automation and access control and card access products (hereinafter individually or collectively, as applicable, referred to as “**Mircom System**”).

#### NOTE TO ALL READERS:

1. **Nature of Warnings.** The within warnings are communicated to the reader out of an abundance of caution and create no legal obligation for Mircom Group of Companies, whatsoever. Without limiting the generality of the foregoing, this document shall NOT be construed as in any way altering the rights and obligations of the parties, governed by the legal documents that apply in any given circumstance.
2. **Application.** The warnings contained in this document apply to all Mircom System and shall be read in conjunction with:
  - a. the product manual for the specific Mircom System that applies in given circumstances;
  - b. legal documents that apply to the purchase and sale of a Mircom System, which may include the company’s standard terms and conditions and warranty statements;
  - c. other information about the Mircom System or the parties’ rights and obligations as may be application to a given circumstance.
3. **Security and Insurance.** Regardless of its capabilities, no Mircom System is a substitute for property or life insurance. Nor is the system a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation. Building automation systems produced by the Mircom Group of Companies are not to be used as a fire, alarm, or life-safety system.

#### NOTE TO INSTALLERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. As the only individual in contact with system users, please bring each item in this warning to the attention of the users of this Mircom System. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure:

4. **Inadequate Installation.** All Mircom Systems must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. National standards require an inspection and approval to be conducted by the local authority having jurisdiction following the initial installation of the system and following any changes to the system. Such inspections ensure installation has been carried out properly.
5. **Inadequate Testing.** Most problems that would prevent an alarm a Mircom System from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested by the local authority having jurisdiction immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises.

The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

## NOTE TO USERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. The end user can minimize the occurrence of any of the following by proper training, testing and maintenance of the Mircom Systems:

6. **Inadequate Testing and Maintenance.** It is imperative that the systems be periodically tested and subjected to preventative maintenance. Best practices and local authority having jurisdiction determine the frequency and type of testing that is required at a minimum. Mircom System may not function properly, and the occurrence of other system failures identified below may not be minimized, if the periodic testing and maintenance of Mircom Systems is not completed with diligence and as required.
7. **Improper Operation.** It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm. A Mircom System may not function as intended during an emergency situation where the user is unable to operate a panic or emergency switch by reason of permanent or temporary physical disability, inability to reach the device in time, unfamiliarity with the correct operation, or related circumstances.
8. **Insufficient Time.** There may be circumstances when a Mircom System will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.
9. **Carelessness or Safety Hazards.** Moreover, smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits or children playing with matches or arson.
10. **Power Failure.** Some Mircom System components require adequate electrical power supply to operate. Examples include: smoke detectors, beacons, HVAC, and lighting controllers. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage Mircom Systems or other electronic equipment. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.
11. **Battery Failure.** If the Mircom System or any device connected to the system operates from batteries it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition, and installed correctly. Some Mircom Systems use replaceable batteries, which have a limited life-span. The expected battery life is variable and in part dependent on the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. Moreover, some Mircom Systems do not have a battery monitor that would alert the user in the event that the battery is nearing its end of life. Regular testing and replacements are vital for ensuring that the batteries function as expected, whether or not a device has a low-battery monitor.
12. **Physical Obstructions.** Motion sensors that are part of a Mircom System must be kept clear of any obstacles which impede the sensors' ability to detect movement. Signals being communicated by a Mircom System may not reach the receiver if an item (such as metal, water, or concrete) is placed on or near the radio path. Deliberate jamming or other inadvertent radio signal interference can also negatively affect system operation.

13. **Wireless Devices Placement Proximity.** Moreover all wireless devices must be a minimum and maximum distance away from large metal objects, such as refrigerators. You are required to consult the specific Mircom System manual and application guide for any maximum distances required between devices and suggested placement of wireless devices for optimal functioning.
14. **Failure to Trigger Sensors.** Moreover, Mircom Systems may fail to operate as intended if motion, heat, or smoke sensors are not triggered.
  - a. Sensors in a fire system may fail to be triggered when the fire is in a chimney, walls, roof, or on the other side of closed doors. Smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building. In this situation the control panel may not alert occupants of a fire.
  - b. Sensors in a nurse call system may fail to be triggered when movement is occurring outside of the motion sensors' range. For example, if movement is occurring on the other side of closed doors or on another level of the residence or building the motion detector may not be triggered. In this situation the central controller may not register an alarm signal.
15. **Interference with Audible Notification Appliances.** Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners, appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.
16. **Other Impairments.** Alarm notification appliances such as sirens, bells, horns, or strobes may not warn or waken a sleeping occupant if there is an intervening wall or door. It is less likely that the occupants will be alerted or awakened when notification appliances are located on a different level of the residence or premise.
17. **Software Malfunction.** Most Mircom Systems contain software. No warranties are provided as to the software components of any products or stand-alone software products within a Mircom System. For a full statement of the warranties and exclusions and limitations of liability please refer to the company's standard Terms and Conditions and Warranties.
18. **Telephone Lines Malfunction.** Telephone service can cause system failure where telephone lines are relied upon by a Mircom System. Alarms and information coming from a Mircom System may not be transmitted if a phone line is out of service or busy for a certain period of time. Alarms and information may not be transmitted where telephone lines have been compromised by criminal tampering, local construction, storms or earthquakes.
19. **Component Failure.** Although every effort has been made to make this Mircom System as reliable as possible, the system may fail to function as intended due to the failure of a component.
20. **Integrated Products.** Mircom System might not function as intended if it is connected to a non-Mircom product or to a Mircom product that is deemed non-compatible with a particular Mircom System. A list of compatible products can be requested and obtained.

## Warranty

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