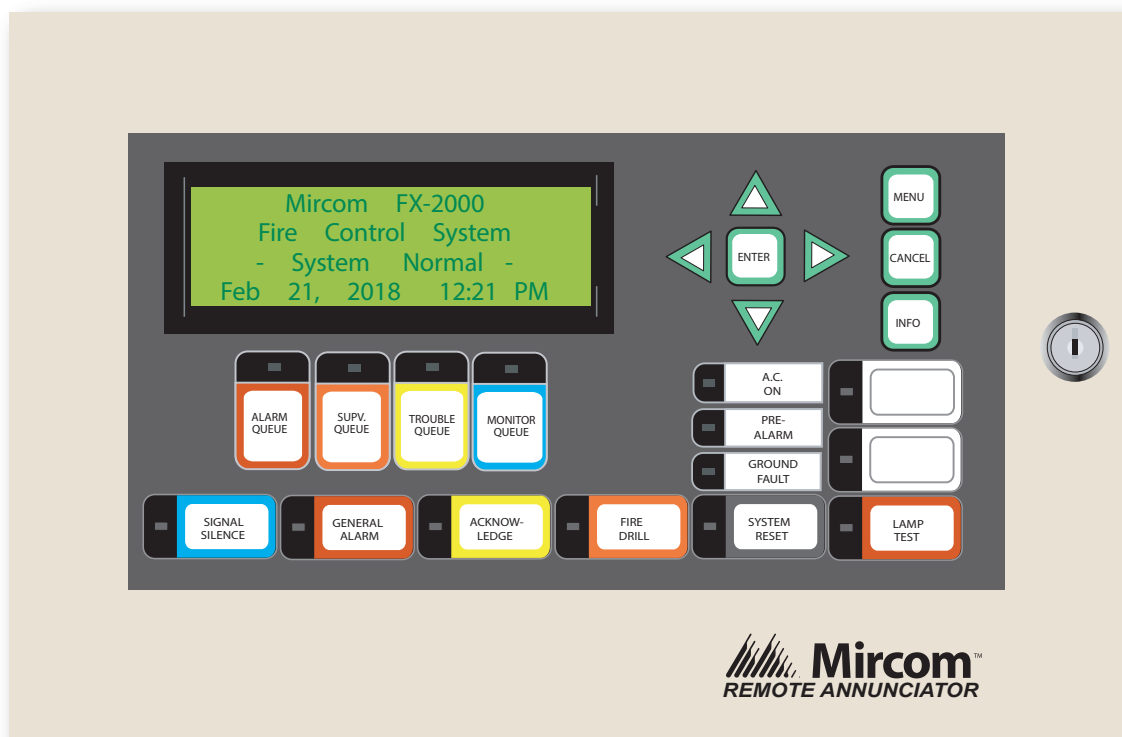


# RAX-LCD

## Remote FX-2000 Annunciator Panel





# Table of Contents

<b>1.0</b>	<b>Introduction</b>	<b>1</b>
<b>2.0</b>	<b>Installation Instructions</b>	<b>2</b>
<b>3.0</b>	<b>Wiring Instructions</b>	<b>3</b>
<b>4.0</b>	<b>DIP Switch Settings</b>	<b>4</b>
4.1	The RAX-1048TZDS Adder Annunciator Chassis .....	6
4.2	The IPS-2424DS Programmable Input Switches Module .....	6
4.3	The RAX-LCD Shared Display Chassis .....	6
<b>5.0</b>	<b>Specifications and Features</b>	<b>7</b>
5.1	Enclosure Models .....	7
5.2	Module Models .....	7
5.2.1	RAX-LCD Remote FX-2000 Shared Display LCD Annunciator .....	7
5.2.2	RAX-1048TZDS Adder Annunciator Chassis (48 Display Points) .....	7
5.3	Current Drain for Battery Calculations .....	8
5.4	Environmental Specifications .....	8
<b>6.0</b>	<b>Warranty and Warning Information</b>	<b>9</b>

# List of Figures and Tables

Table 1	Backboxes .....	<b>2</b>
Figure 1	Mechanical Assembly Diagram .....	<b>2</b>
Figure 2	Wiring Diagram .....	<b>3</b>
Figure 3	Annunciator Panel Connections .....	<b>3</b>
Table 2	Maximum Wiring Run to Last Annunciator .....	<b>4</b>
Table 3	Annunciator “Address” Settings .....	<b>5</b>
Figure 4	Annunciator Connections .....	<b>6</b>
Table 4	Enclosure Model Descriptions .....	<b>7</b>

## 1.0 Introduction

Mircom's FX-2000's remote shared display is the RAX-LCD. The RAX-LCD shared display provides an exact replica (less 16 zone LEDs) of the main FX-2000 Fire Alarm Panel display at a remote location. It is equipped with a large 4 line x 20 character back-lit alphanumeric LCD display that uses a simple menu system complete with a directional keypad and switches for Enter, Menu Cancel and Info. The display expands with up to a total of four RAX-1048TZDS Adder Annunciator or six IPS-2424DS Programmable Input Switches Modules. There are five types of enclosure available: the BB-1001D/R, BB-1002D/R, BB-1003D/R, BB-1008D/R, and BB-1012D/R which can take 1,2,3,8,12 chassis respectively. It may also be mounted in the BB-5008 and the BB-5014.

## 2.0 Installation Instructions

Table 1 Backboxes

Backbox	Height H (in.)	Width (in.)	Mounting A (in.)	Mounting B (in.)
BB-1001D/R	9.0"	12.75"	9.95"	7.5"
BB-1002D/R	18.0"	12.75"	9.95"	16.5"
BB-1003D/R	26.5"	12.75"	9.95"	24.9"
BB-1008D/R	33.0"	22.5"	20.9"	35.2"
BB-1012D/R	45.0"	22.5"	20.9"	52.0"

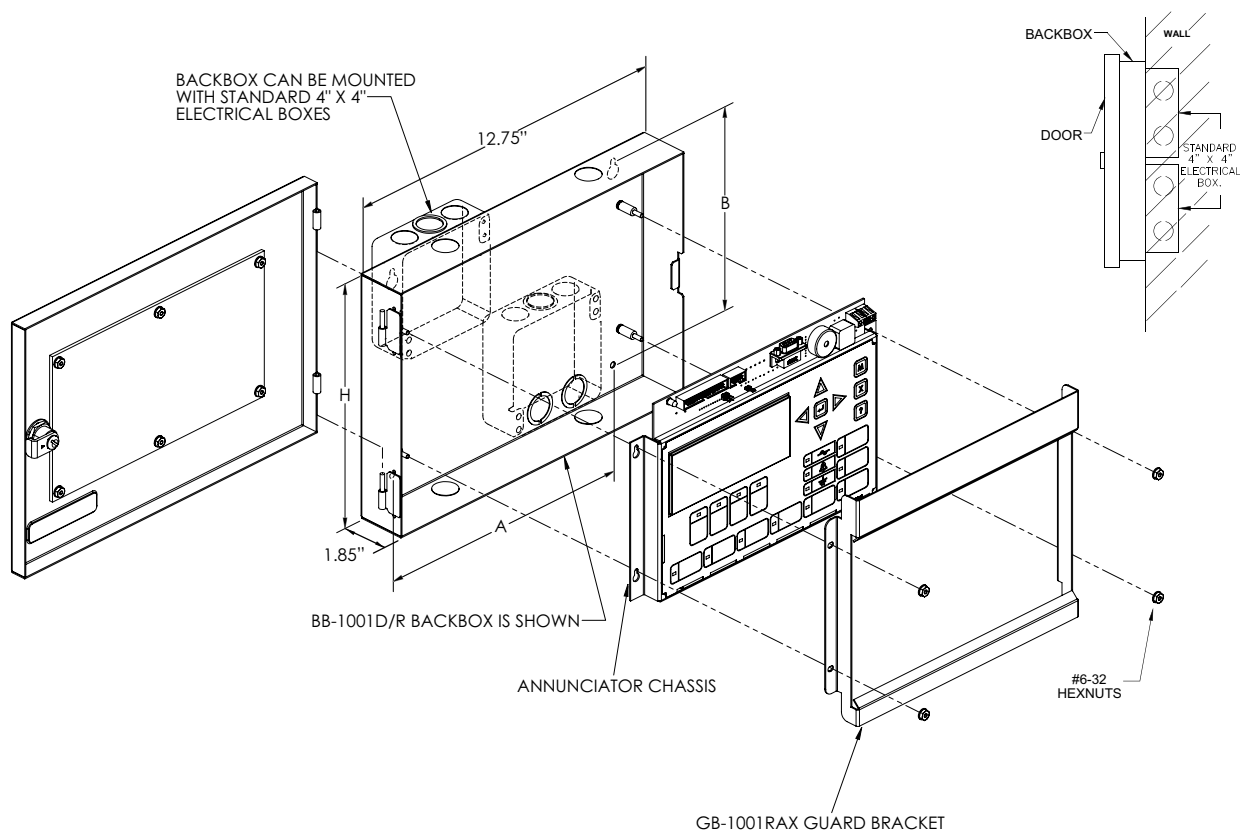


Figure 1 Mechanical Assembly Diagram

The RAX-1048TZDS is supplied with the NP-681 Blank Laser Printable Label Sheet.



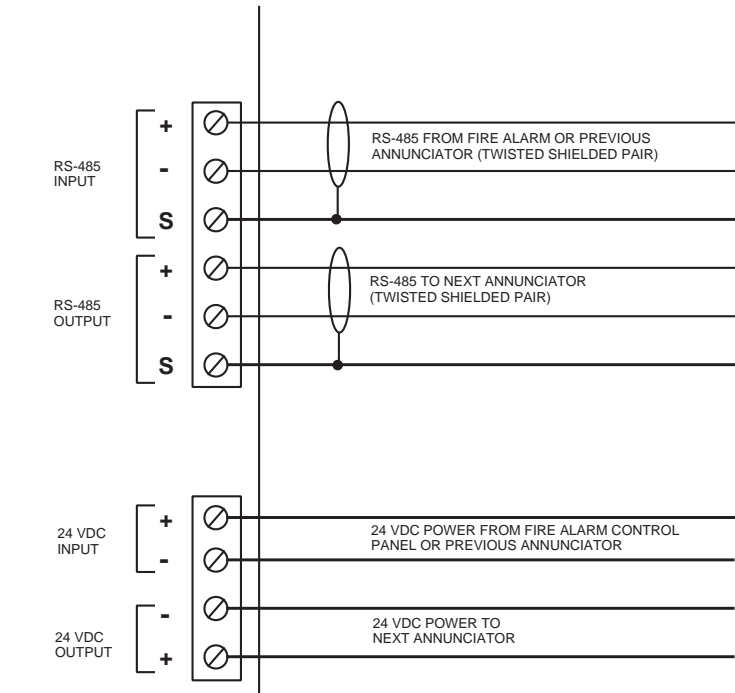
**Note:** The RAX-1048TZDS displays Initiating circuit status and trouble indication. Indicating and relay circuits are not remotely displayed. For more details, see the fire alarm control panel manual that the annunciator is connected to.

## 3.0 Wiring Instructions

The RS-485 wiring to the RAX-LCD Display Module is recommended to be twisted shielded pair as shown in the diagram to the right. The wire gauge may be:

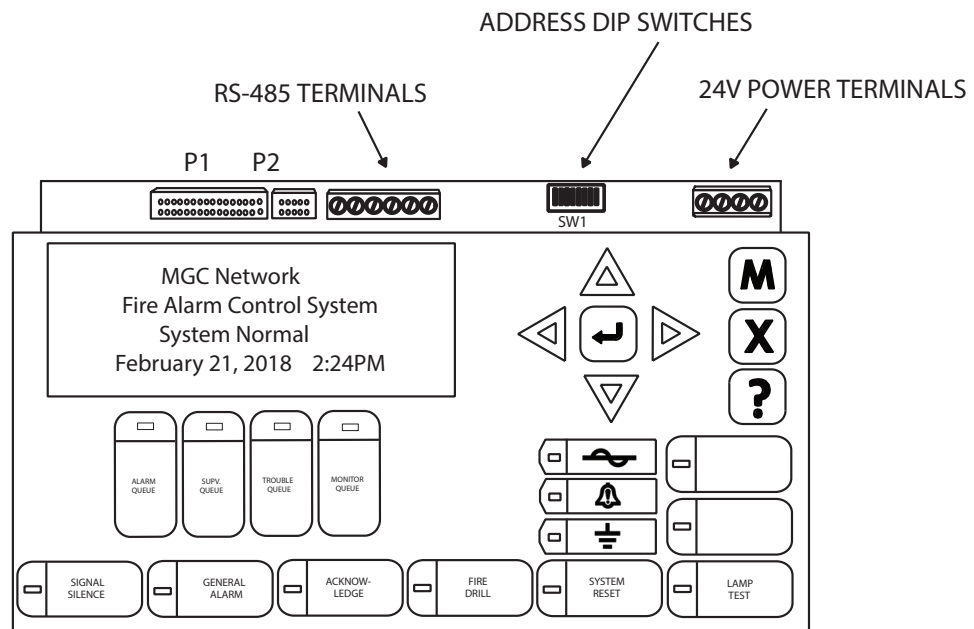
- 22 AWG up to 2000 ft.
- 20 AWG up to 4000 ft.

The RS-485 wiring from the fire alarm control panel to the annunciator(s) must be point-to-point from the fire alarm panel to the first annunciator, then to the next annunciator, and so on. No star wiring or T-tapping is allowed. Each RAX-LCD Shared Display has a 120 ohm end-of-line resistor on its RS-485 output terminals. This is removed on all except the last wired module.



**Figure 2 Wiring Diagram**

The 24 VDC field wiring needs to be of an appropriate gauge for the number of annunciators and the total wiring run length. Use the *Current Drain for Battery Calculations* on page 8 to calculate the maximum current for all annunciators summed together.



**Figure 3 Annunciator Panel Connections**



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



**Attention:** Accidentally connecting any of the 24 VDC 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 2 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

## 4.0 DIP Switch Settings

Each RAX-LCD Shared Display Annunciator needs to be assigned a unique address via the switch SW1. The RAX-LCD DIP switches are set as:

SW1-1 = Address A0  
SW1-2 = Address A1  
SW1-3 = Address A2

SW1-4 = Address A3

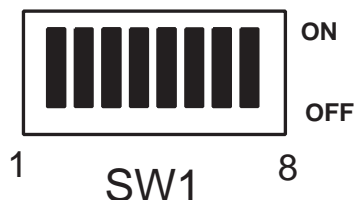
SW1-5 = Address A4

SW1-6 = Address A5(OFF)

SW1-7 = not used

SW1-8 = Put in "OFF" position for firmware restore during power up. At all other times put in "ON" state.

### DIP SWITCH SETTINGS



DIP switches are for assigning an address to the RAX-LCD. Binary addresses 33 to 63 are available with the least significant bit being switch SW-1 and the most significant bit being SW-6. The OFF setting is active binary. DIP switches SW1-7 and SW1-8 are not used. For example, address 33 is set by setting SW1-6 and SW1-1 OFF and all the other DIP switches are ON.

The OFF setting is active. The addresses available for the RAX-LCD are 33 to 63. Set the address as follows in the table below:



**Table 3 Annunciator “Address” Settings**

Address	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	Address	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
33	OFF	ON	ON	ON	ON	49	OFF	ON	ON	ON	OFF
34	ON	OFF	ON	ON	ON	50	ON	OFF	ON	ON	OFF
35	OFF	OFF	ON	ON	ON	51	OFF	OFF	ON	ON	OFF
36	ON	ON	OFF	ON	ON	52	ON	ON	OFF	ON	OFF
37	OFF	ON	OFF	ON	ON	53	OFF	ON	OFF	ON	OFF
38	ON	OFF	OFF	ON	ON	54	ON	OFF	OFF	ON	OFF
39	OFF	OFF	OFF	ON	ON	55	OFF	OFF	OFF	ON	OFF
40	ON	ON	ON	OFF	ON	56	ON	ON	ON	OFF	OFF
41	OFF	ON	ON	OFF	ON	57	OFF	ON	ON	OFF	OFF
42	ON	OFF	ON	OFF	ON	58	ON	OFF	ON	OFF	OFF
43	OFF	OFF	ON	OFF	ON	59	OFF	OFF	ON	OFF	OFF
44	ON	ON	OFF	OFF	ON	60	ON	ON	OFF	OFF	OFF
45	OFF	ON	OFF	OFF	ON	61	OFF	ON	OFF	OFF	OFF
46	ON	OFF	OFF	OFF	ON	62	ON	OFF	OFF	OFF	OFF
47	OFF	OFF	OFF	OFF	ON	63	OFF	OFF	OFF	OFF	OFF
48	ON	ON	ON	ON	OFF						

## 4.1 The RAX-1048TZDS Adder Annunciator Chassis

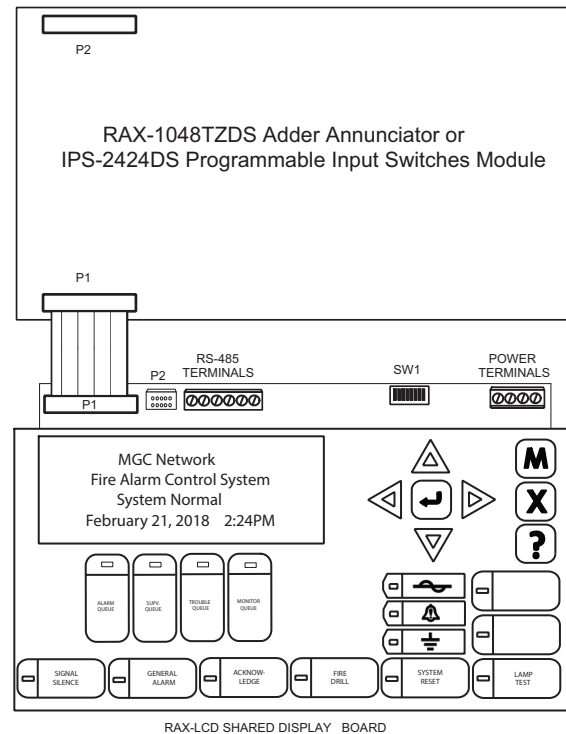
**P1:** Connects to the main annunciator chassis, or to the previous RAX-1048TZDS or IPS-2424DS.

**P2:** Connects to the next RAX-1048TZDS or IPS-2424DS.

## 4.2 The IPS-2424DS Programmable Input Switches Module

**P1:** Connects to the main annunciator chassis, or to the previous RAX-1048TZDS or IPS-2424DS.

**P2:** Connects to the next RAX-1048TZDS or IPS-2424DS.



**Figure 4 Annunciator Connections**

## 4.3 The RAX-LCD Shared Display Chassis

**P1:** Connects to the first RAX-1048TZDS or IPS-2424DS.

**P2:** BDM port.

**Terminals:** See *Wiring Instructions* on page 3 for details.

**SW1:** See above for details.



**Note:** The last annunciator must have 120 ohm E.O.L. resistor connected to RS-485 output terminals.

## 5.0 Specifications and Features

### 5.1 Enclosure Models

The finish of all enclosures is painted semi-gloss off white. For enclosure dimensions see 4.0 DIP Switch Settings

**Table 4 Enclosure Model Descriptions**

Modle Number	Material	Description
<b>BB-1001D/R</b>	18 GA. CRS	Backbox for one annunciator chassis with keylock door
<b>BB-1002D/R</b>	18 GA. CRS	Backbox for one annunciator chassis with keylock door
<b>BB-1003D/R</b>	16 GA. CRS	Backbox for one annunciator chassis with keylock door
<b>BB-1008D/R</b>	16 GA. CRS Door is 14 GA	Backbox for one annunciator chassis with keylock door
<b>BB-1012D/R</b>	16 GA. CRS Door is 14 GA	Backbox for one annunciator chassis with keylock door

### 5.2 Module Models

#### 5.2.1 RAX-LCD Remote FX-2000 Shared Display LCD Annunciator

- 24V DC nominal, range of 20 to 39V DC.
- Interconnects via one ribbon cable (or wiring) to the FX-2000 Fire Alarm Panel or to previous RAX-LCD.
- Provides exact functions as the FX-2000 main display.
- Standby: 100 mA Max., All LEDs ON: 150 mA Max.

#### 5.2.2 RAX-1048TZDS Adder Annunciator Chassis (48 Display Points)

- Interconnect via one ribbon cable from RAX-LCD or to previous RAX-1048TZDS or IPS-2424DS to the next RAX-1048TZDS or IPS-2424DS.
- Annunciation of up to 48 additional points.
- Standby: 15 mA Max., All LEDs ON: 100 mA Max.

### 5.3 Current Drain for Battery Calculations

The following are the currents for the RAX-LCD to which is added the number of RAX-1048TZDS and/or IPS-2424DS used:

**Normal Standby Current** = 100 mA + [ \_\_\_\_\_ X 15 mA] + [ \_\_\_\_\_ X 10mA] = \_\_\_\_\_  
(number of RAX-1048TZDS) (number of IPS-2424DS)

**Maximum** = 150 mA + [ \_\_\_\_\_ X 15 mA] + [ \_\_\_\_\_ X 144mA] = \_\_\_\_\_  
(number of RAX-1048TZDS) (number of IPS-2424DS)

Use the “normal standby current” for battery size calculations (see the fire alarm control panel manual for battery calculations) and includes the current drain for the Trouble Buzzer, Trouble LED, and one alarm LED. Use the “maximum current” to calculate the wire size (see *Wiring Instructions* on page 4).

### 5.4 Environmental Specifications

This annunciator is intended for indoor use only.

## 6.0 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

**Purchase of all Mircom products is governed by:**

<https://www.mircom.com/product-warranty>

<https://www.mircom.com/purchase-terms-and-conditions>

<https://www.mircom.com/software-license-terms-and-condition>



CANADA - Main Office  
25 Interchange Way  
Vaughan, ON L4K 5W3  
Tel: (888) 660-4655  
(905) 660-4655  
Fax: (905) 660-4113

U.S.A  
4575 Witmer Industrial Estates  
Niagara Falls, NY 14305  
Tel: (888) 660-4655  
(905) 660-4655  
Fax: (905) 660-4113

© Mircom 2018  
Printed in Canada  
Subject to change without prior notice  
[www.mircom.com](http://www.mircom.com)