FIRE LINK·3

Wireless Extension for Emergency and Fire Alarm System

Installation and Operation Manual

Table of Contents

6.0   Indicators and Controls   27

7.0   Operation   31

8.0   DIP Switch Settings for each ZC and WIO   34

9.0   Appendix A - Specifications and Features   36

10.0   Warranty and Warning Information   38

List of Figures

List of Tables

1.0 Introduction

1.1 The Fire-Link 3 Wireless Emergency and Fire Alarm System

Mircom's Fire-Link 3 Wireless is an emergency and fire alarm system add-on designed to provide extendible connectivity without the cost of new cable installation.

1.1.1 Features

- Compatible with the following Mircom fire alarm control panels FleX-Net, FX-2000, FX-3500, FX-3318 and Secutron MMX, MR-3500 and MR-3318 that have addressable SLC loops using addressable devices in CLIP mode only.

- Connects to any fire alarm panel with conventional contacts.

- Wireless connection to notification devices.

- Supports Single and Two stage notification.

- Battery backup.

- Configurable Trouble, AC Fail, and Alarm relay outputs.

- UL 864 and ULC S527.

1.1.2 General Notes
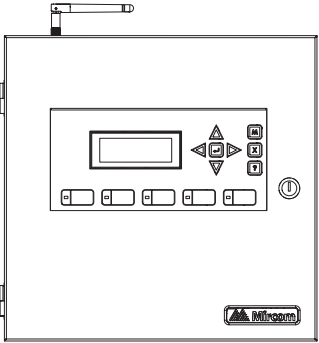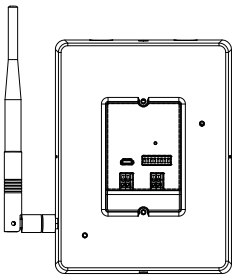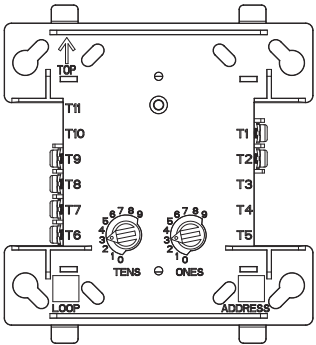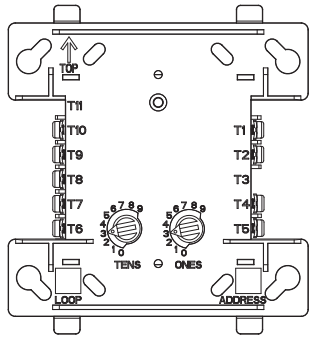
Circuits And Zones

Circuit refers to an actual electrical interface, Input (Detection), or NAC (Notification Appliance Circuit) which connects audible and visible notification appliances to the fire alarm system control unit (Signal) or Relay. **Zone** refers to defined geographic areas (one or more floors, wings, or buildings) that may contain detectors, NACs, or releasing devices.

2.0 Fire-Link 3 Wireless Overview

2.1 Fire-Link 3 Wireless Components

Table 1 Fire-Link 3 Wireless Components

	Model	Description
	ZC-301W Zone Controller (white door)	Manages the wired connection with the FACP (Fire Alarm Control Panel) and wireless connections with the Wireless Input/Output units. It plugs into a dedicated branch 120/240 VAC receptacle. Model includes the black backbox, main board, inner chassis and front door.
	WR-3001R Wireless Input/Output unit (red) WR-3001W Wireless Input/Output unit (white)	Wireless device that connects the notification appliance to the Zone Controller's network.
	MIX-M500MAPA (Canada) MIX-M500MAP (US)	Advanced Protocol Addressable Monitor Input Module
	MIX-M500RAPA (Canada) MIX-M500RAP (US)	Advanced Protocol Addressable Relay Output Module

2.2   ZC-301W Zone Controller (ZC)

The Zone Controller relays messages between the Wireless Input/Output unit and the Fire Alarm Control Panel. It plugs into any 120/240 VAC receptacle and has battery backup. It should be installed one per floor or zone and wired through either the Notification Appliance Circuit (NAC) or Addressable Loop (SLC) connection to the Fire Alarm Control Panel. The Zone Controller is NOT an annunciator.

Operating Frequency: 2.4 GHz

Maximum number of Zone Controllers per system: 16

2.2.1   WR-3001R/W Wireless Input/Output unit (WIO)

The Wireless Input/Output unit communicates wirelessly with the Zone Controller and drives one notification appliance. Synchronization is NOT available between WIOs and only one WIO shall be installed in any notification area, such as a suite within a multi-residential building. The Authority Having Jurisdiction (AHJ) shall have the final say as to the synchronization requirements of the particular situation. Notification devices can be audibly silenced, but strobes may continue to flash as set-up in the system configuration. Supported notification appliances are as follows:

* 2 wire notification appliances manufactured by Mircom, System Sensor, Cooper (two stage is not supported), and Gentex.

The Wireless Input/Output unit is powered by 120 or 240 VAC and has a backup battery.

Broadcast Frequency: 2.4 GHz

Maximum number of Wireless Input/Output units per Zone Controller is 49.

Maximum number of Wireless Input/Output units per system is 784.

2.2.2   Input Module and Relay Module

The MIX-M500MAP(A) input module connects the Zone Controller to the SLC in order to deliver signals from the Zone Controller to the Fire Alarm Control Panel (FACP).

The MIX-M500RAP(A) relay module connects the Zone Controller to the SLC in order to deliver signals from the Fire Alarm Control Panel to the Zone Controller. One relay module is required, but additional modules permit trouble and further reporting.

Mircom or Secutron FACP with SLC loop do not require any Monitor or Relay Modules for connection to the Zone Controller.

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Notes: (1) The Zone Controller should be connected directly to the Fire Alarm Control Panel.

(2) The Zone Controller is compatible with any Fire Alarm Control Panel brand for dry contact relay connection and Mircom FleX-Net, FX-2000, FX-3500, FX-3318 and Secutron MMX, MR-3500 and MR-3318 for addressable SLC loop connection.

(3) The Zone Controllers should be installed one per floor and wired through either the NAC or Addressable Loop connections to the Fire Panel.

2.3   System Overview

Mircom's Fire-Link 3 Wireless offers a fast, clean and cost effective wireless fire alarm audible signaling solution for multi-residential buildings that are in need of a fire alarm audibility upgrade without the need to add wiring to the building.

Inter-device communications is accomplished wirelessly using an extremely robust and secure mesh network technology. The two main system components are the Zone Controller (ZC) and the Wireless Input-Output unit (WIO). The Zone Controllers are installed one per floor in the building and then connected using either addressable loops or NAC (bell) circuits to the Fire Panel.

The Wireless Input/Output unit is a wireless base and is designed to be connected to Mircom's and other's third party notification appliances.

Figure 1 shows the system components of the Fire-Link 3 Wireless system.
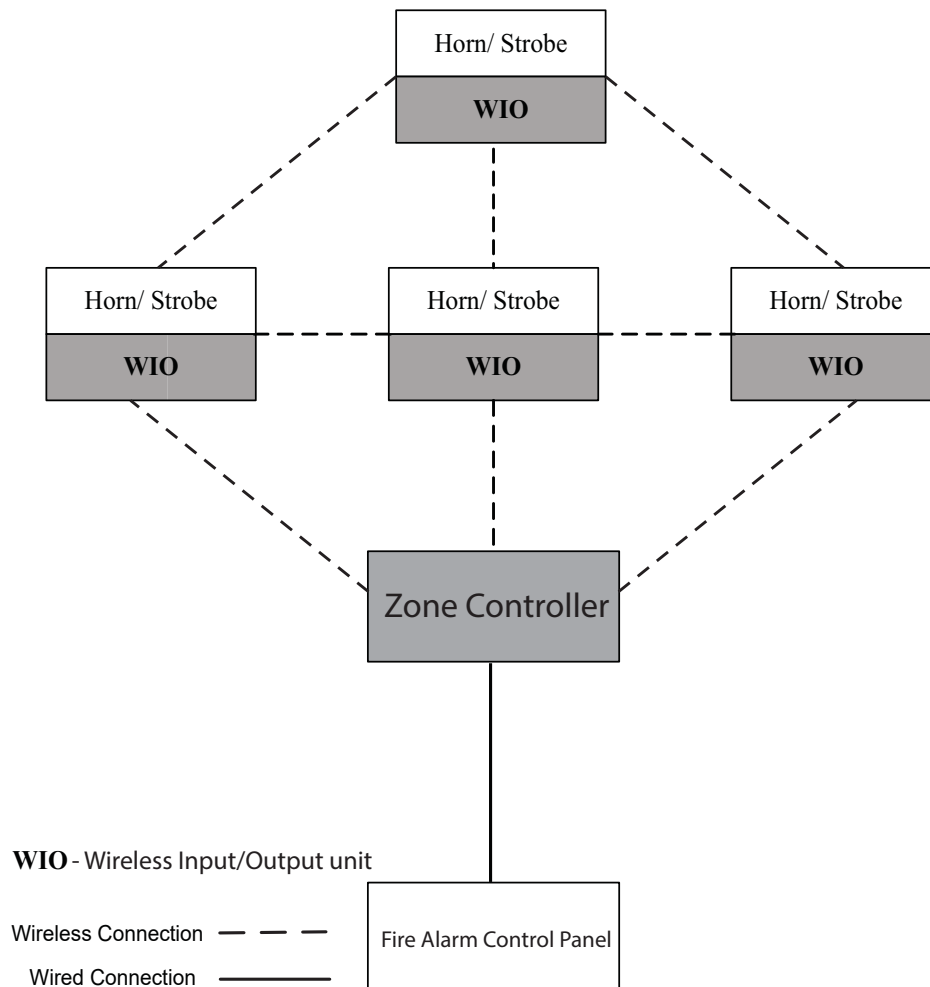
Figure 1   System Components

3.0 Zone Controller Installation

> **Caution:** **Excessive Force**
>
> Improper installation or excessive force will damage the motherboard and modules being installed or removed.

> **Caution:** **Static Sensitive Components**
>
> Ensure AC and Battery power is disconnected before installing or removing any boards, modules, or cables.
>
> Fire-Link Wireless circuit boards contain static-sensitive components. Operators should always be grounded with a proper wrist strap before handling any boards to remove any static charges from the body. Use static suppressive packaging to protect electronic assemblies.
>
> Installer and operators should use proper conduit and wire isolation to keep Power-Limited and other wiring at least 1/4 inches apart.

3.1 Installing the Zone Controller Enclosure

The Fire-Link 3 Enclosures can be surface mounted with four screws.

Tools needed:

- Hexnut driver
- Precision or jeweler's screwdriver set
- Philips screwdriver
- Wire cutter
- Wire stripper

3.1.1 Installation Tips

- Perform visual inspection of circuit board and parts for obvious issues.
- Group the incoming wires through the top of the enclosure. Use a wire tie to group wires for easy identification and neatness.

3.2 Overall dimensions of the Zone Controller
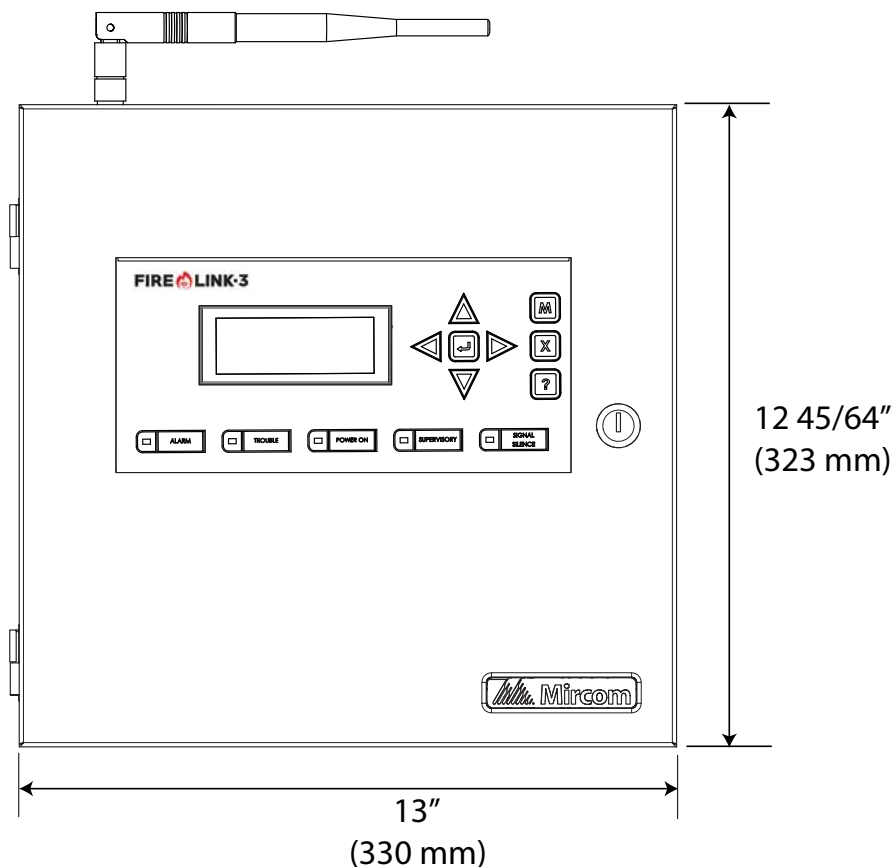
Figure 2   Zone Controller Enclosure Dimensions

3.3   Mechanical installation of the Zone Controller

To surface mount the Zone Controller enclosure

1. Remove the front door and disconnect the bonding strap.
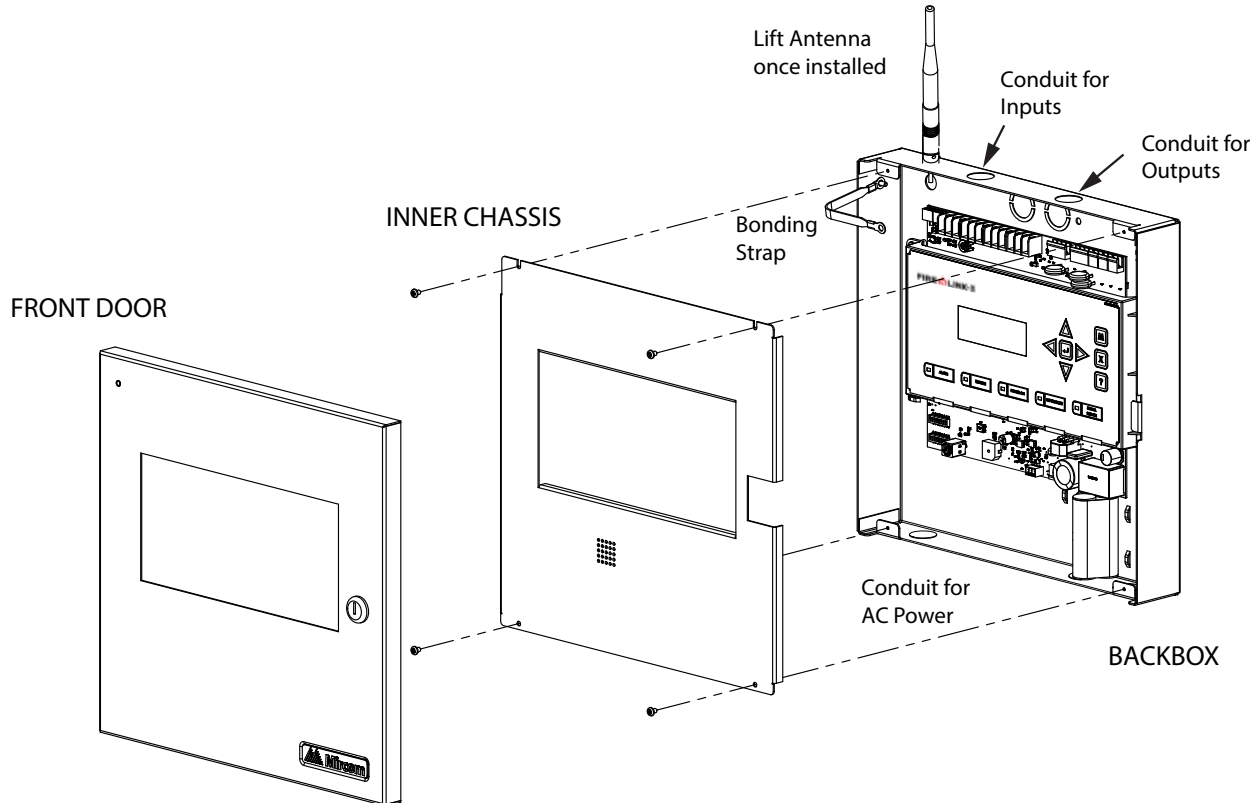
Figure 3   Mechanical installation of the Zone Controller

2. Remove the four screws securing the inner chassis to the backbox and remove the inner chassis.

3. Mark the location of the four mounting holes of the backbox on the wall. Drill the holes and use any additional anchoring devices. For example, dry wall or cement plugs.

4. Fasten two screws halfway into the wall in the top two positions marked in step 3, using #6 screws.

5. Remove knockouts and attach conduit.

6. Hang the box onto the two screws.

7. Screw the other two screws at the bottom of the backbox

8. Tighten all four screws into place.

9. Once wiring is complete, mount the inner chassis and front door, making sure to reconnect the bonding strap to the front door.

3.4   Conduits for Wiring

AC power must be run through a dedicated conduit. Use the bottom left conduit for AC wiring. Use the top left conduit for input wiring and the top right for output wiring. Refer to Figure 3.

3.4.1 Clearances

The controls shall be no less than 60 cm and no more than 180 cm above the finished floor

.
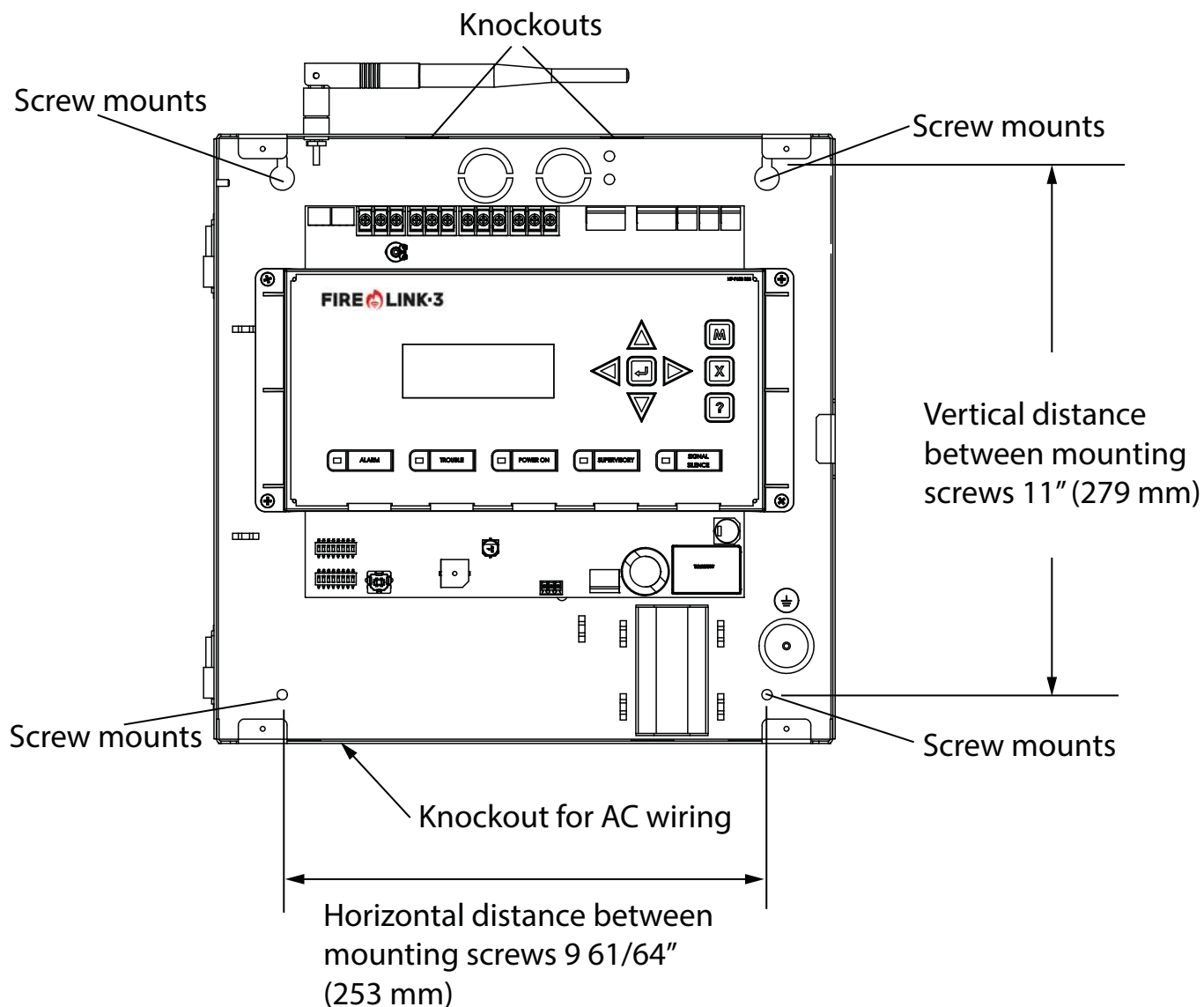
Figure 4   Zone Controller Mounting Holes Dimensions

3.5   Connect the Power

The Zone Controller can operate on either 120 VAC or 240 VAC on the AC mains, and battery power when there is a drop or complete loss of electrical power.
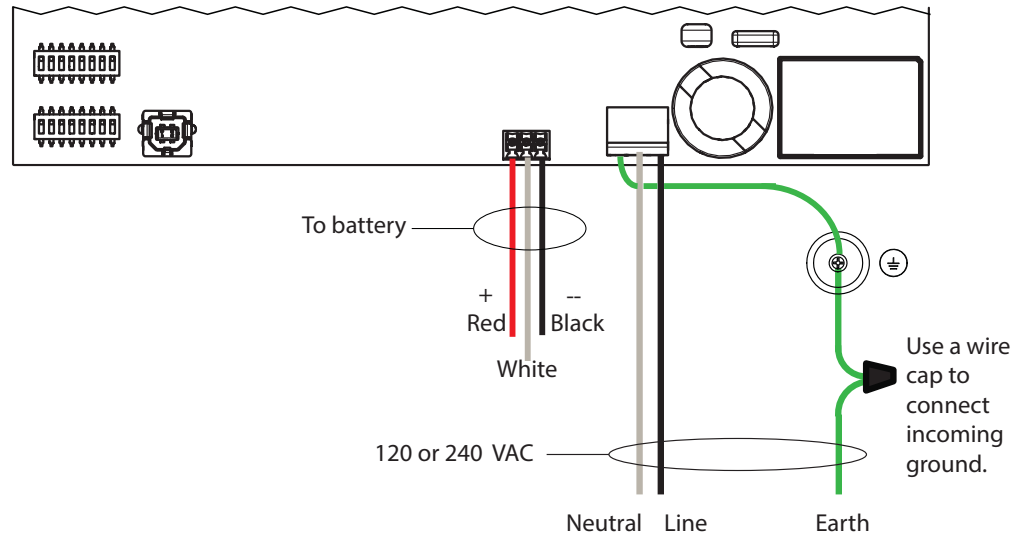
Figure 5   Zone Controller AC and Battery Power Wiring

3.5.1 AC Power

- Connect the AC power to the terminal located on the bottom right corner of the Zone Controller main board as shown in Figure 5.

i **Note:**   Connect AC power to the Zone Controller first, before connecting the battery.

3.5.2 Battery Power

1. Plug in the battery wire plug to the battery terminals of the Zone Controller as shown in Figure 5.

Battery Maintenance

The sealed rechargeable batteries should be replaced after each period of 3 to 5 years of normal service. If the Battery Trouble indicator activates, obtain required service.

3.6 DIP Switches

Configure each Zone Controller with both a PAN ID (zone controller panel identification) and channel ID.

Configure all devices in the same zone with the same PAN ID and channel ID.

Use the lower bank of DIP switches, as shown in Figure 6.

NOT USED

Bottom DIP switches are for PAN ID and Channel ID

USB port for configuration
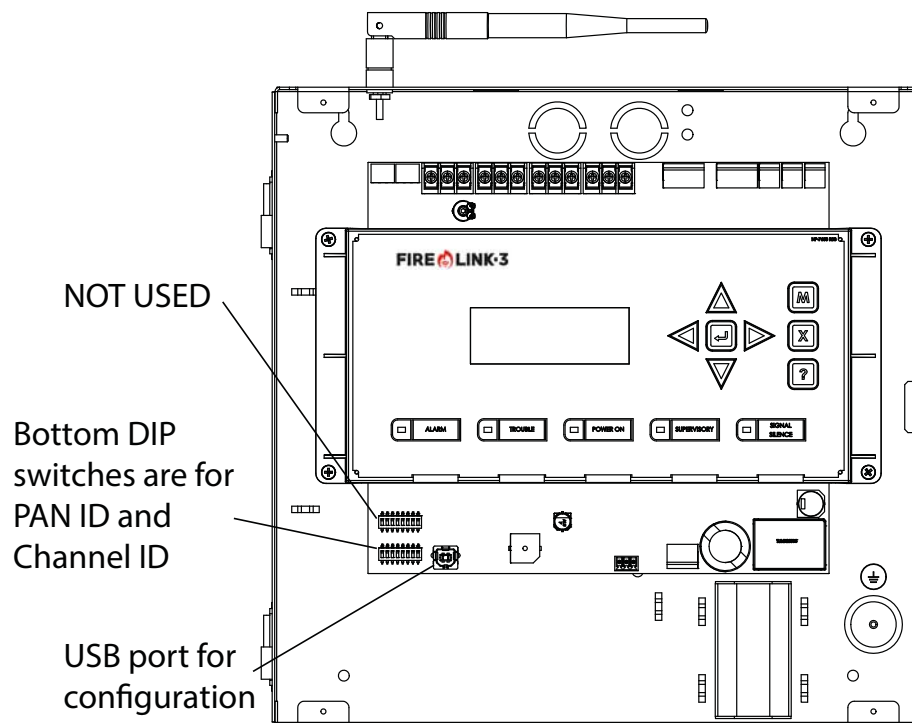
Figure 6   Location of Zone Controller DIP Switches and USB port

3.6.1 Setting the DIP Switches

Use the lower bank of DIP switches to set the PAN ID and channel ID as shown in Figure 7.

See Section 8.0 on page 34 for the list of DIP switch settings.

1-0-0-0-0-0-0-0

ON

OFF
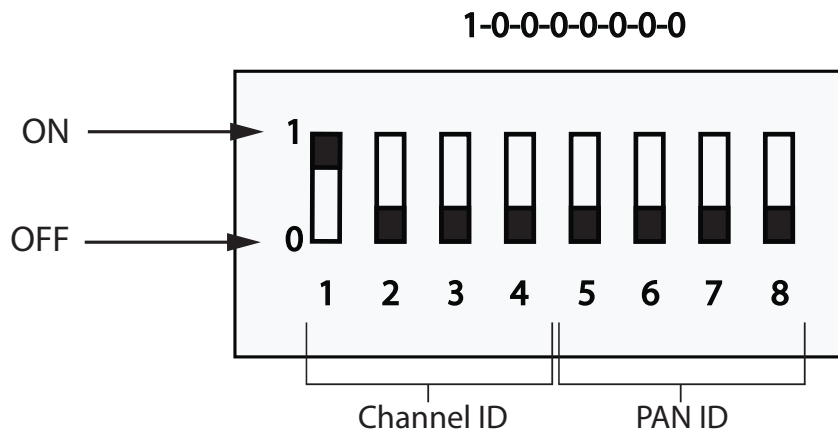
Channel ID   PAN ID

Figure 7   DIP Switches on the Zone Controller set to Channel ID 19 and PAN ID 1126

4.0 Wireless Input/Output Unit Installation

	Caution:	**Excessive Force**
!		Improper installation or excessive force will damage the motherboard and modules being installed or removed.

	Caution:	**Static Sensitive Components**
!		Ensure AC and Battery power is disconnected before installing or removing any boards, modules, or cables.
		Fire-Link 3 circuit boards contain static-sensitive components. Operators should always be grounded with a proper wrist strap before handling any boards to remove any static charges from the body. Use static suppressive packaging to protect electronic assemblies.
		Installer and operators should use proper conduit and wire isolation to keep Power-Limited and other wiring at least 1/4 inches apart.

4.1 Installing the WIO Unit

The Wireless Input/Output unit mounting plate is compatible with 3" by 2" single gang device boxes, 3-3/4" by 4" double gang boxes, 4" by 2" single gang utility boxes, standard 4" by 4" boxes, and standard 4" octagon boxes.

Tools needed:

- Hexnut driver
- Precision or jeweler's screwdriver set
- Philips screwdriver
- Wire cutter
- Wire stripper

4.1.1 Installation Tips

- Perform visual inspection of parts for obvious issues.
- Group the incoming wires through the top of the enclosure. Use a wire tie to group wires for easy identification and neatness.

4.1.2 Parts

Tamper Screw remove with bit
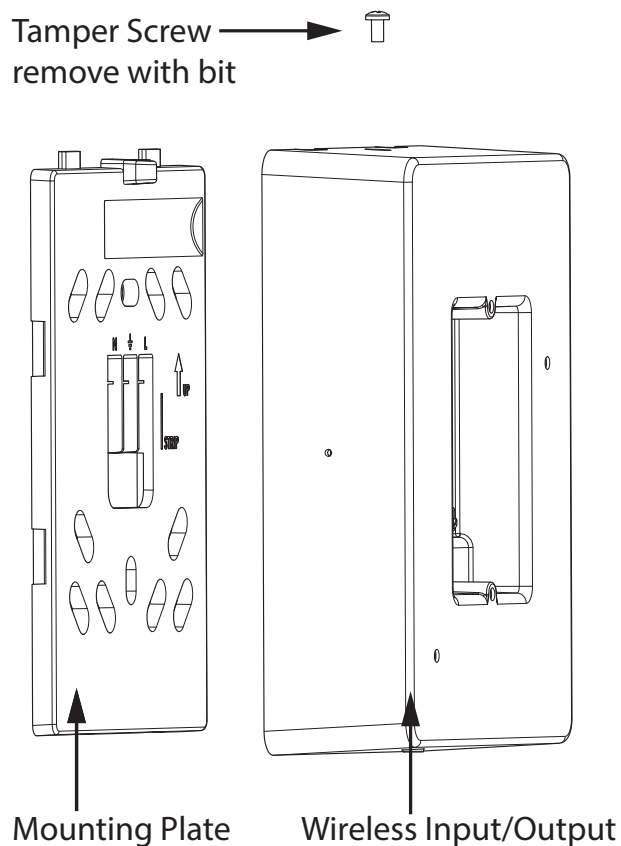
Figure 8   Parts of the Wireless Input/Output unit

Mounting Plate   Wireless Input/Output

4.2   Dimensions

6 5/8"
(168 mm)

4 3/4"
(121 mm)
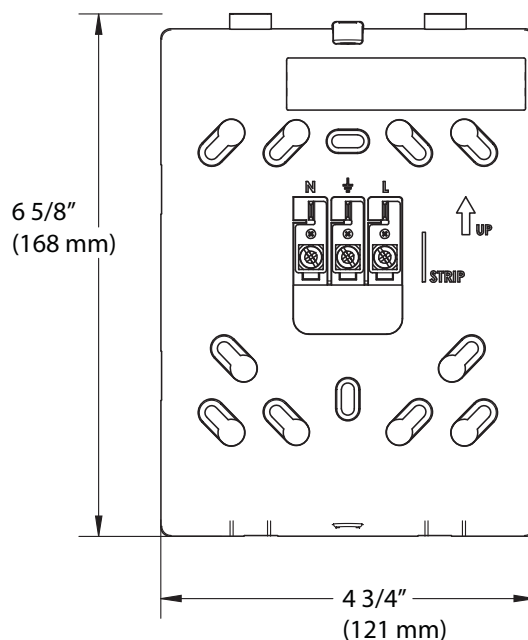
Figure 9   Wireless Input/Output unit Mounting Plate Dimensions

4.3   DIP Switches

You must configure each Wireless Input/Output unit with both a PAN ID and channel ID.

For all Wireless Input/Output units on the same floor or zone, set the channel ID and PAN ID to the same channel ID and PAN ID as the Zone Controller for that floor or zone. All devices in the same zone should have the same channel ID and PAN ID.

Micro USB port for configuration

DIP switches for PAN ID and Channel ID

Connect included red jumper wire to battery terminals to activate batteries.

Terminal for Notification Appliance Circuit
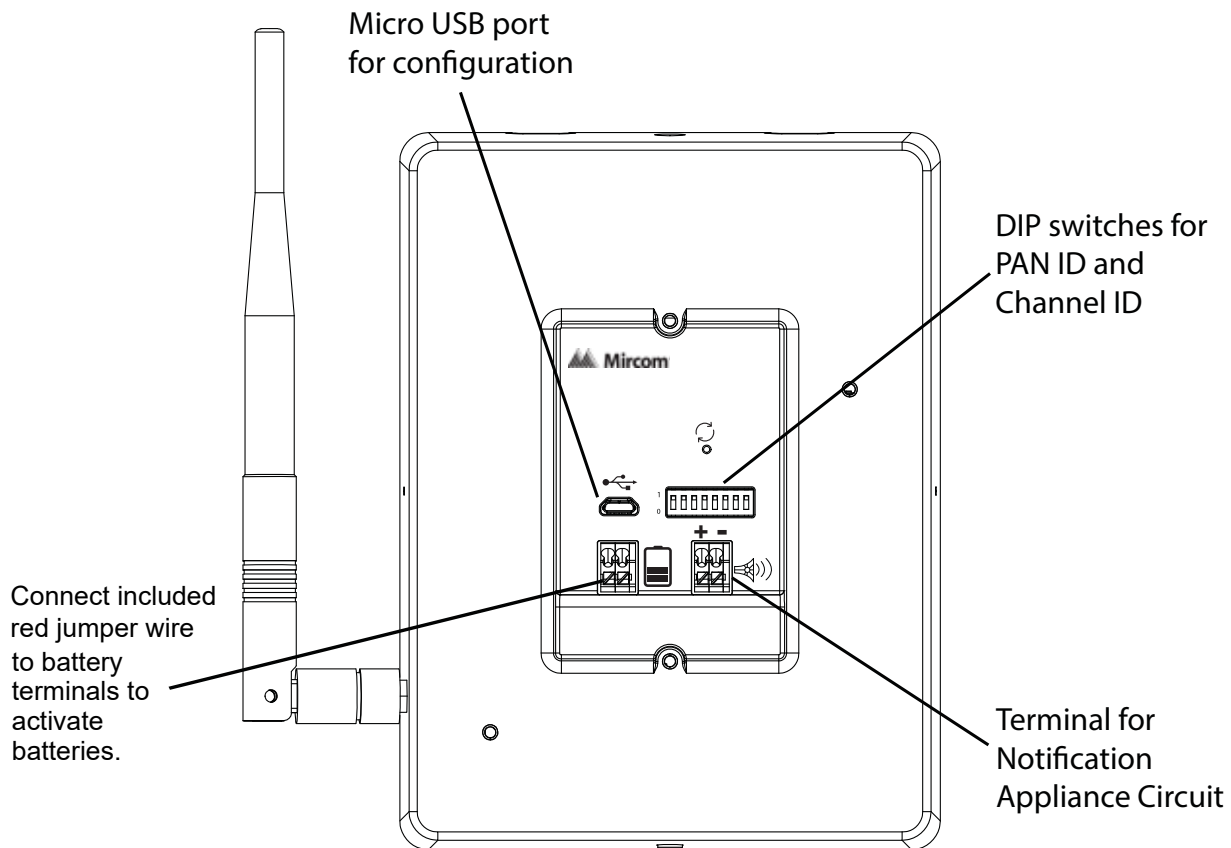
Figure 10   Location of Wireless Input/Output unit DIP Switches and Connections

4.3.1 Setting the DIP Switches

Use the DIP switches to set the PAN ID and channel ID as shown in Figure 11.

See section 8.0 on page 34 for the list of DIP switch settings.

1-0-0-0-0-0-0-0
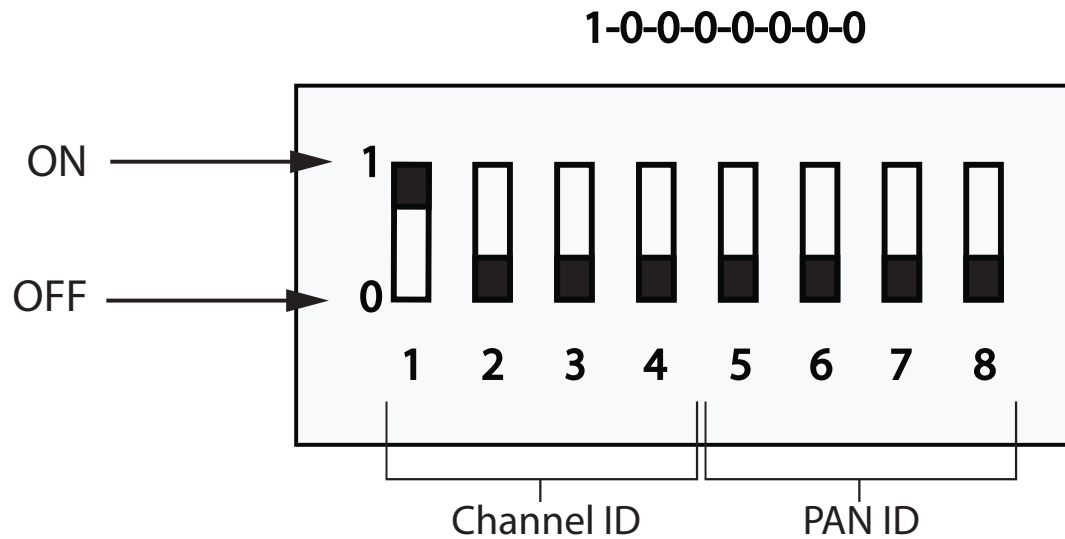
Figure 11   DIP switches on the Wireless Input/Output unit set to Channel ID 19 and PAN ID 1126

4.4   Mounting the Wireless Input/Output unit

The Wireless Input/Output unit may be mounted on the wall or ceiling.

To connect the AC power

- Wire the mounting plate to the standard 120 VAC or 240 VAC service with three wires.
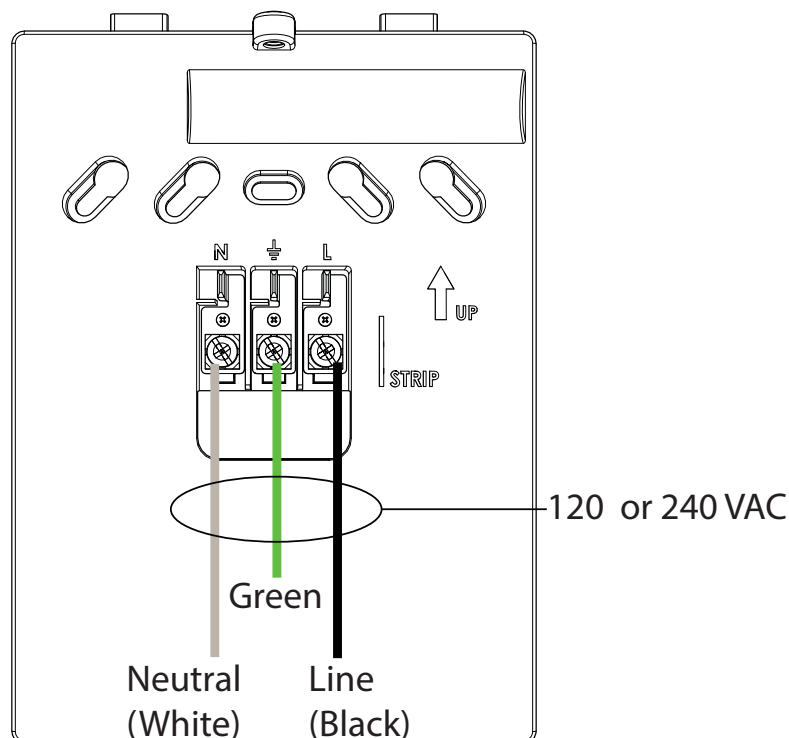
Figure 12   Mounting Plate (Front View)

Battery Power

The Wireless Input/Output unit has internal batteries to provide backup power, if AC power is lost.

Battery Maintenance

The sealed rechargeable batteries should be replaced after each period of 3 to 5 years of normal service. If the Battery Trouble indicators activate, obtain required service.

To Mount the Mounting Plate

1. Mount the mounting plate with the arrow pointing up, see Figure 12 Mounting Plate (Front View) on page 14.

    Attach the mounting plate to the gang box with 2 or 4 screws.

Mounting Holes

This side up
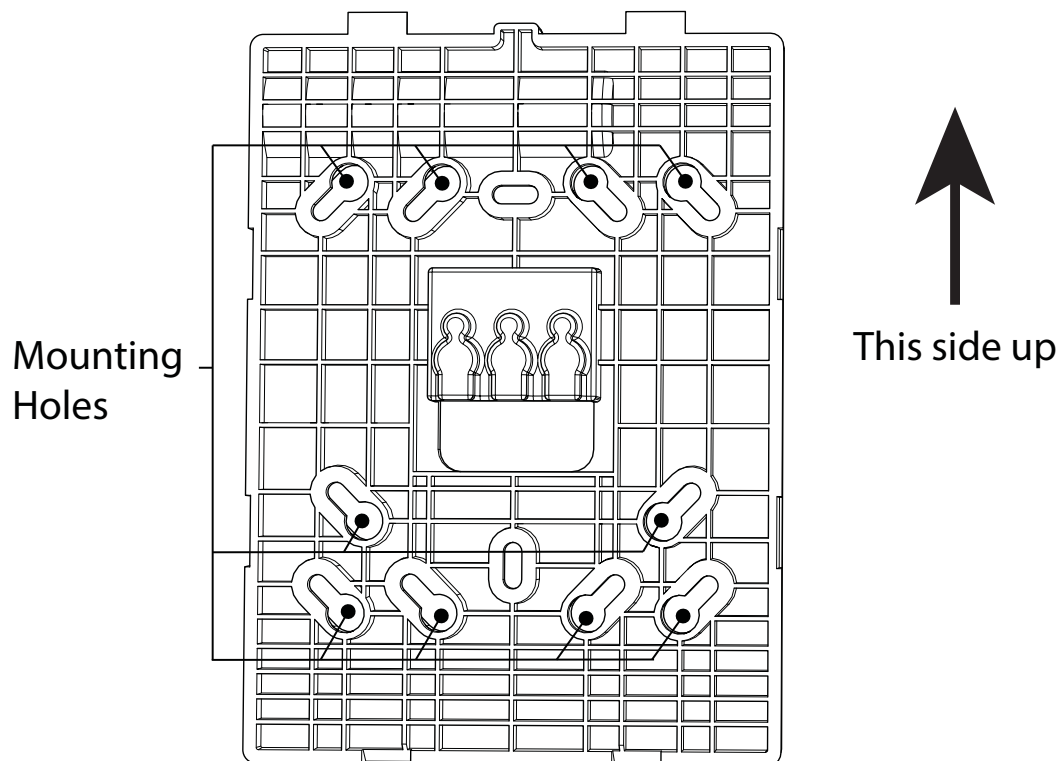
Figure 13   Mounting Plate (Back View)

2. Snap the Wireless Input/Output unit onto the mounting plate and secure with the tamper screw.
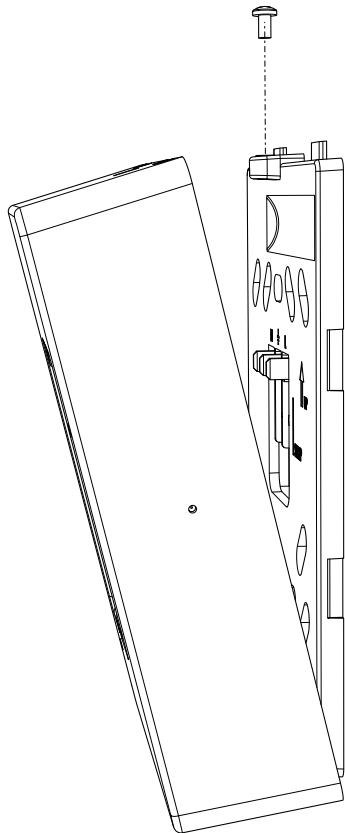
Figure 14   Mounting the Wireless Input/Output unit on the Mounting Plate

4.5   Connecting the Notification Appliance to the Wireless Input/ Output unit

To Mount the Notification Appliance to the Wireless Input/Output unit Enclosure

1. Wire a 3.9 kΩ end of line resistor (EOL) to ensure that the Wireless Input/Output unit properly supervises the circuit. Notification appliance must be mounted on WIO or with conduit otherwise (this connection shall not be greater than 6.1 metres and use an extension ring for proper mechanical connection).

    Figure 15 shows a generic notification appliance mounting plate. Refer to the manufacturer's documentation for the appliance's specific mounting and wiring requirements.
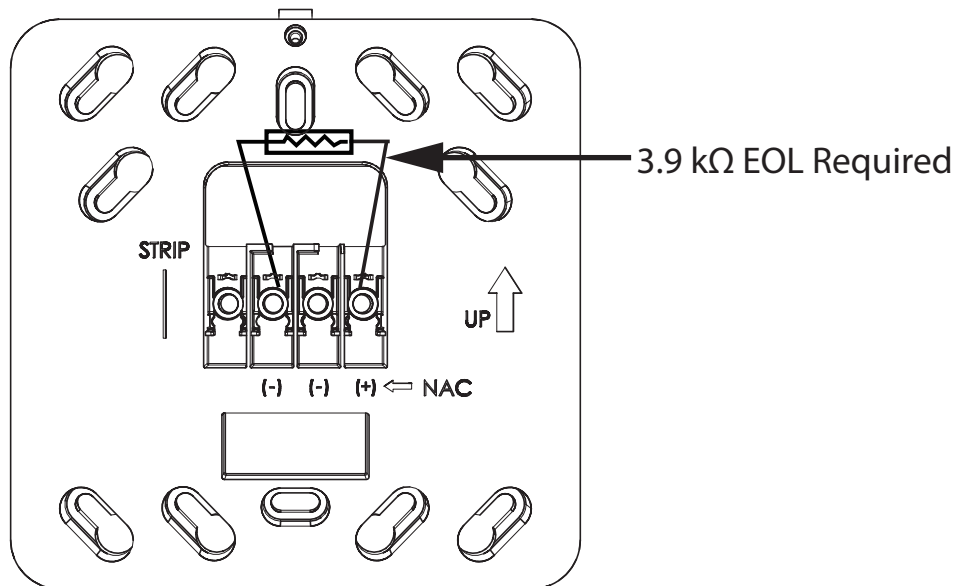
Figure 15   Generic Notification Appliance Mounting Plate with End of Line Resistor

2. Wire the appliance mounting plate's electrical contact screws to the right terminals on the Wireless Input/Output unit as shown in Figure 16.

> **Note:**   Use wire lengths that will fit into the cavity behind the Wireless Input/Output unit plugs, DIP switches, and USB terminal (22 AWG 6 cm length).

3. Screw the appliance mounting plate to the front of the Wireless Input/Output unit using whichever mounting plate screw holes fit the 4 11/16" diagonal separation screw mounts of the WIO unit, as shown in Figure 17.
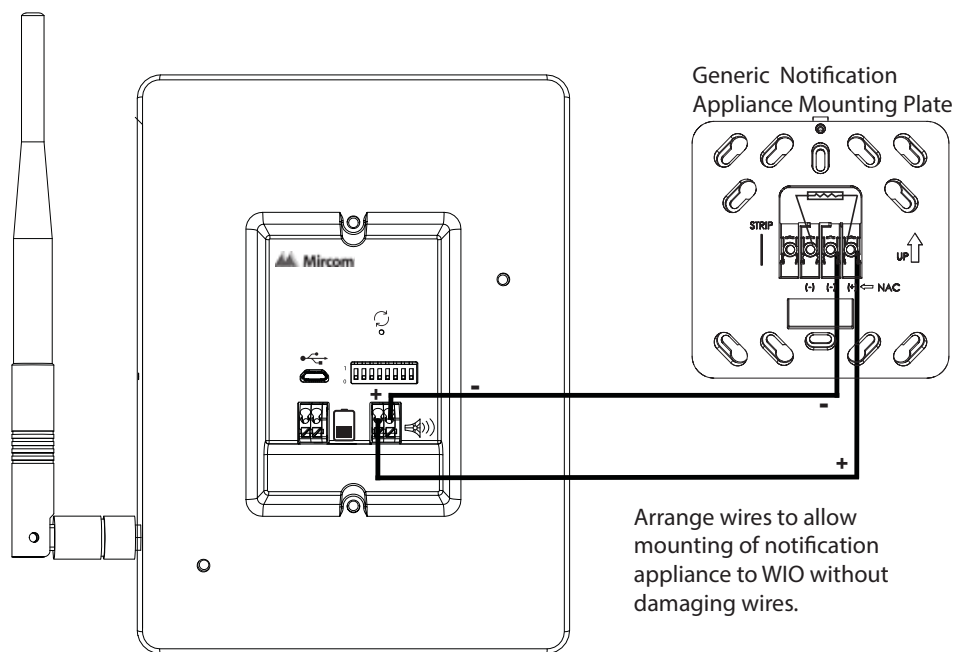
Figure 16   Wiring the Notification Appliance Mounting Plate to WIO unit
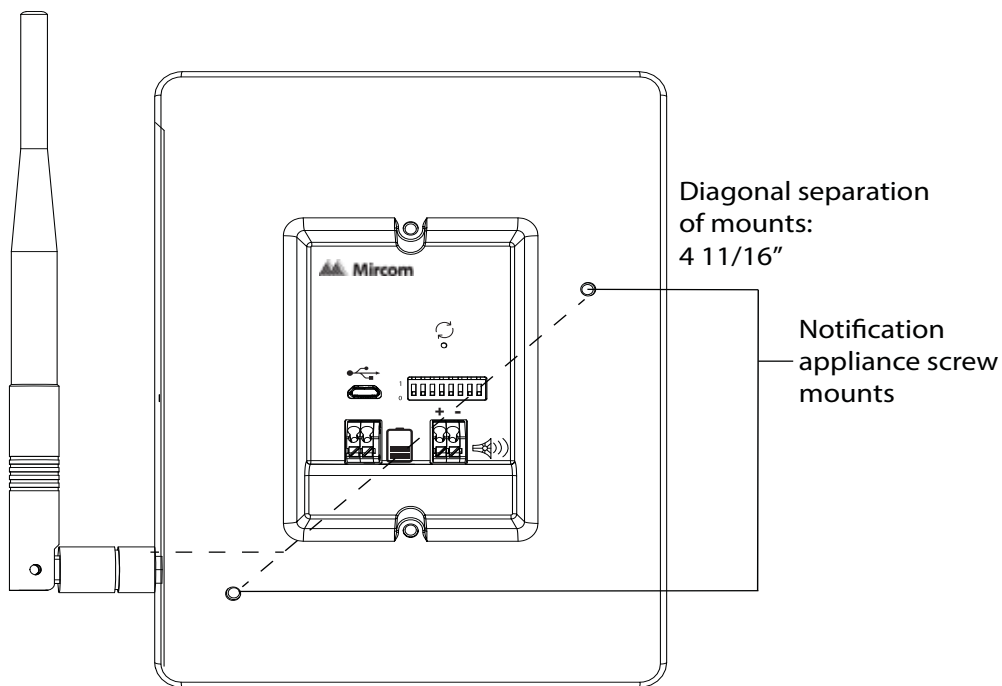
Figure 17   Notification Appliance Mounting Holes Available on the WIO unit

5.0 Wiring

Mircom recommends using AWG 18 to AWG 24 shielded twisted pair (or triple) in each cable, subject to Authority Having Jurisdiction.

NOTE: All wiring is Power-Limited, except for mains AC supply.

5.1 Zone Controller Board Terminal Connectors Location
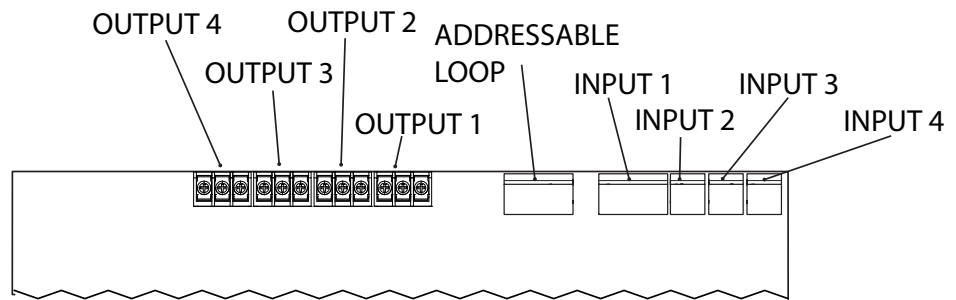
Top section of ZC-301W board

Figure 18 Zone Controller Board Terminal Connectors

5.1.1 Zone Controller Input Terminals
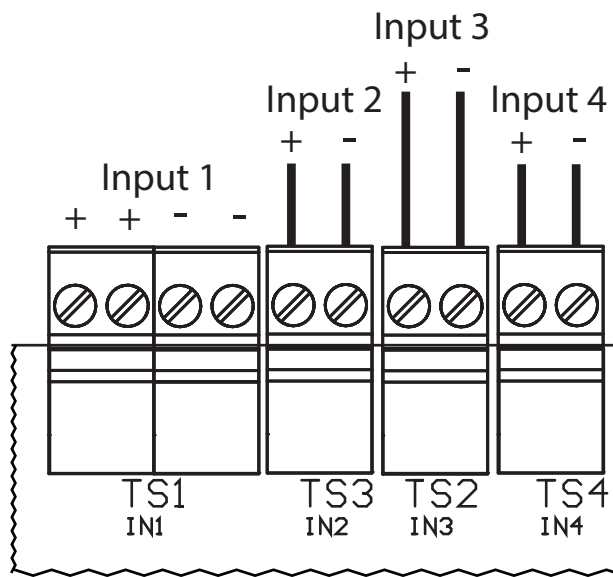
Top right-hand section of ZC-301W board

Figure 19 Zone Controller Inputs 1-4

5.1.2 Zone Controller Addressable Loop Terminals

Wire Mircom's (or Secutron's) FACP panel's SLC loop to the addressable loop connection of the ZC-301W, refer to Figure 20 below and Figure 28 for further wiring information.

Addressable Loop

Left of input terminals
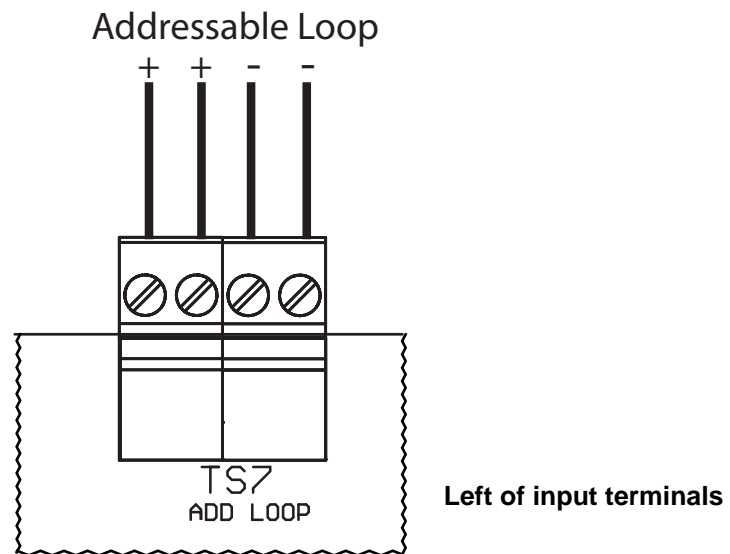
Figure 20 Zone Controller Addressable Loop

5.1.3 Zone Controller Output Terminals

Zone Controller outputs are configurable

Top center section of ZC-301W board
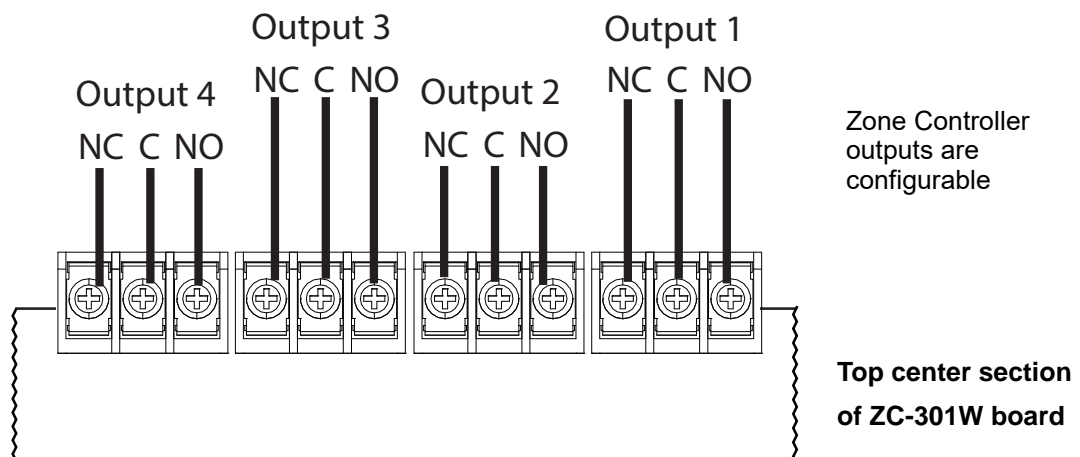
Figure 21 Zone Controller Outputs 1-4

5.1.4 RS-485

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> **Note:** The RS-485 terminals (TS13 and TS14) are not used.

5.2   FACP NAC Wiring to Zone Controllers
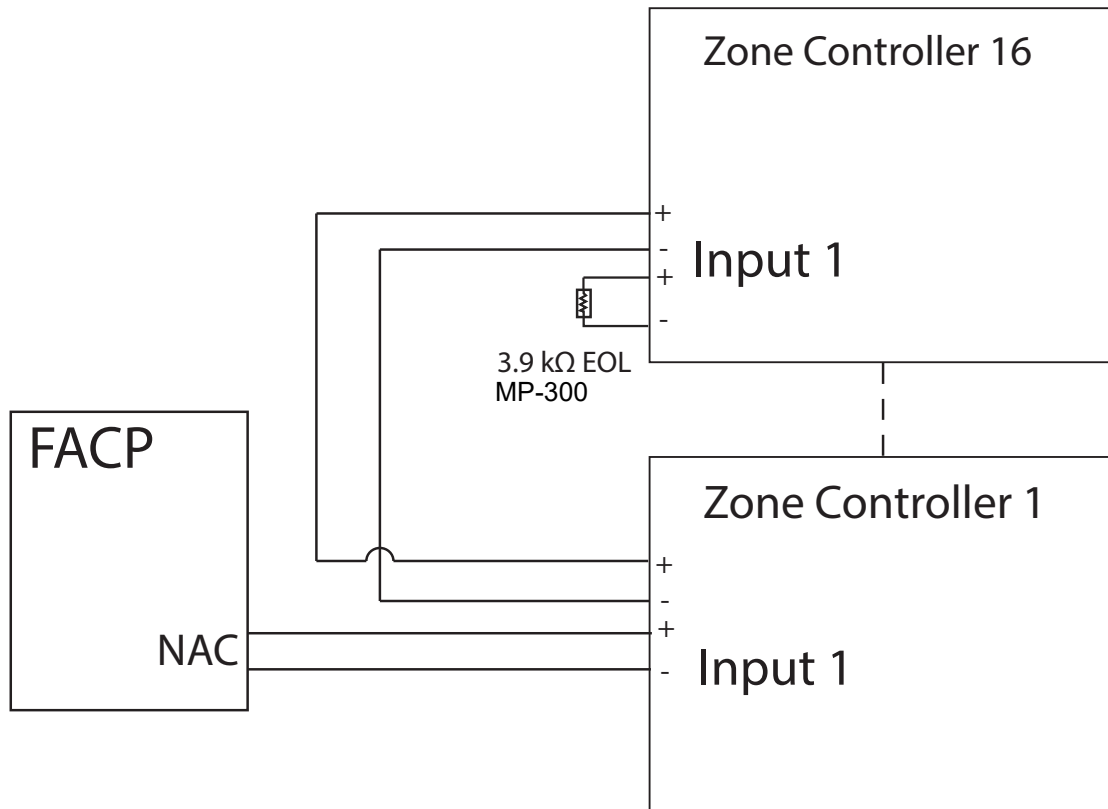
Figure 22   Wiring From Conventional FACP to Zone Controllers Input Zone 1
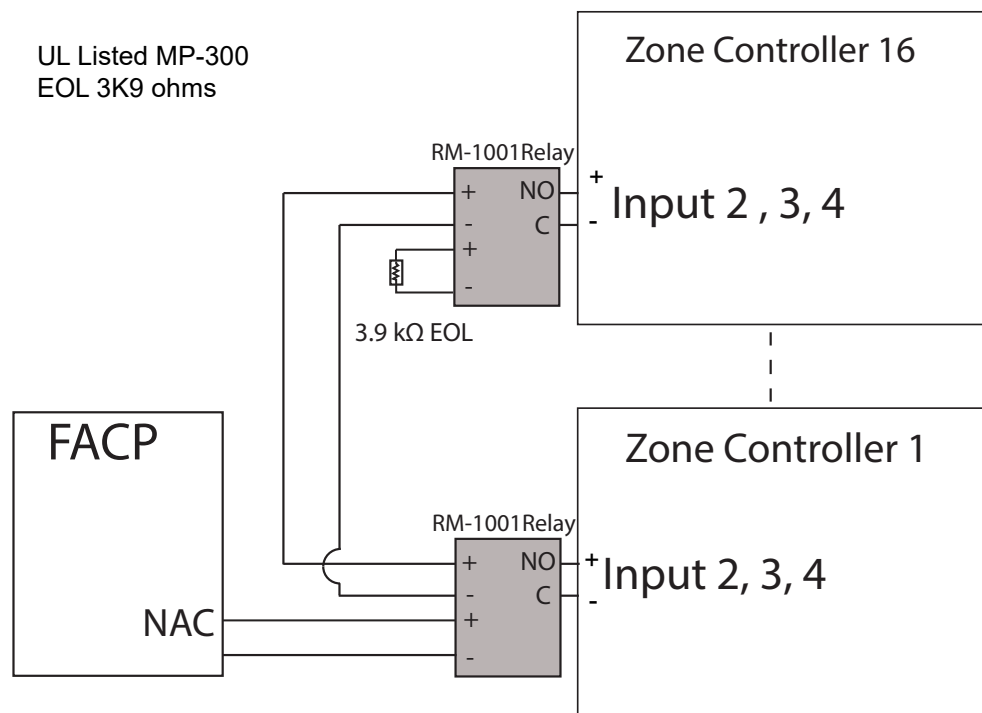
Figure 23   Wiring From Conventional FACP to Zone Controllers Input Zones 2, 3 and 4

5.3 Zone Controller Relay Wiring to FACP Input Zones

Use UL listed EOL resistors
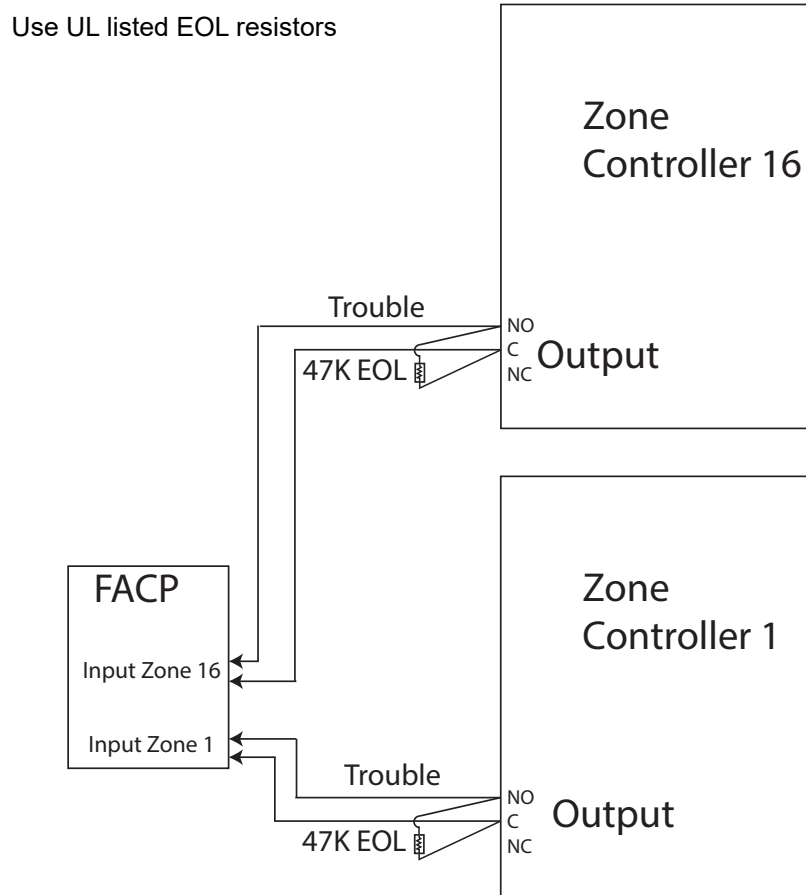
Figure 24   Wiring From Zone Controllers to Conventional FACP

5.4 FACP SLC Loop Wiring to Zone Controllers

Figure 25 shows SLC Class B wiring with the MIX-M500MAP(A) Advanced Protocol addressable input monitor module and MIX-M500RAP(A) Advanced Protocol addressable relay output module. When an alarm occurs, the Fire Alarm Control Panel activates the relay module, and the Zone Controller's input detects that the relay module is activated. The Zone Controller then activates the Wireless Input/Output units, which activates the notification appliances.

In the case of a trouble on the Zone Controller, the Zone Controller activates its Output, which activates the input module, which then sends a signal to the Fire Alarm Control Panel. Since the Zone Controller has 4 Outputs, this application can provide up to 4 different types of trouble, or 1 alarm and up to 3 different types of trouble.

NOTE: If the fire alarm control panel has off premise signalling, one of the Zone Controller Outputs must be programmed for AC trouble.

Use UL listed EOL resistors

Figure 25   Wiring From any FACP to Fire-Link 3 Wireless System via Class B SLC Loop
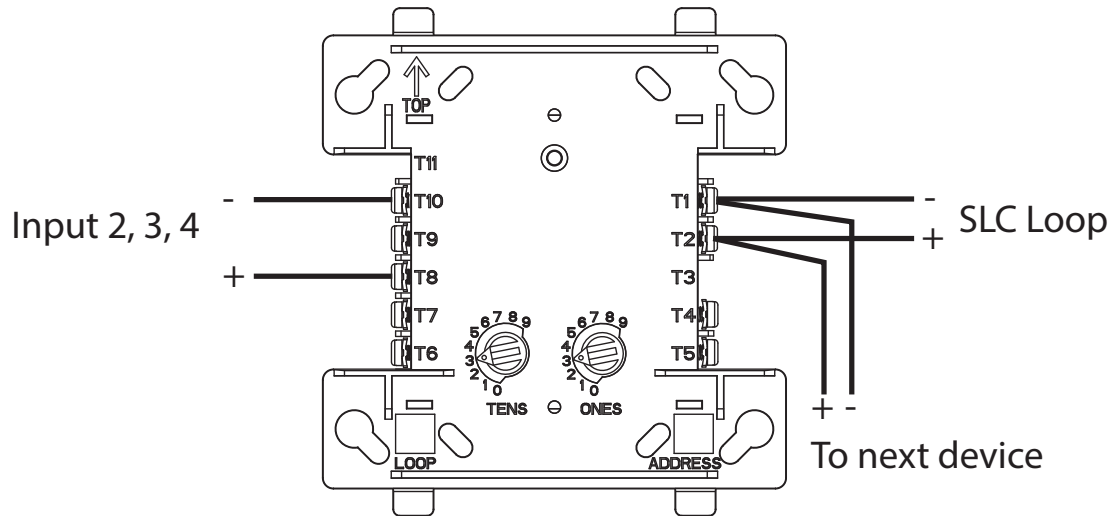
Figure 26   MIX-M500RAP(A) Advanced Protocol Addressable Relay Control Module Wiring Detail
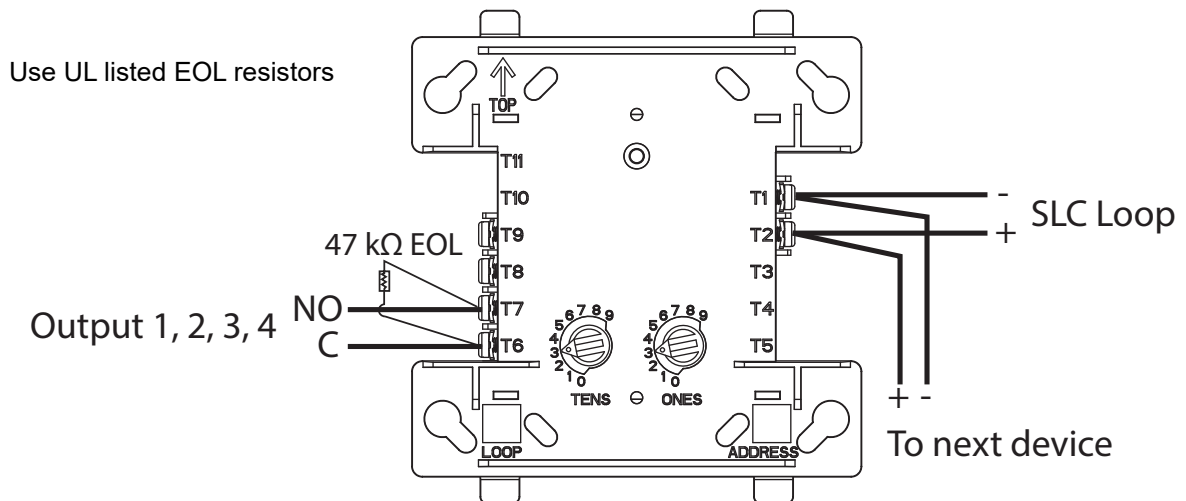
Figure 27   MIX-M500MAP(A) Advanced Protocol Addressable Monitor Module Wiring Detail

5.5   Mircom and Secutron FACP SLC Loop Wiring to Zone Controllers

When connecting a Mircom or Secutron FACP SLC loop to the zone controller, there is no need for any relay and monitor modules. Wire the SLC loop from the Mircom FACP to each addressable loop connector on the Zone Controller in a daisy chain fashion. Refer to Figure 28. For Class X (or Style 7) wiring refer to Figure 29.
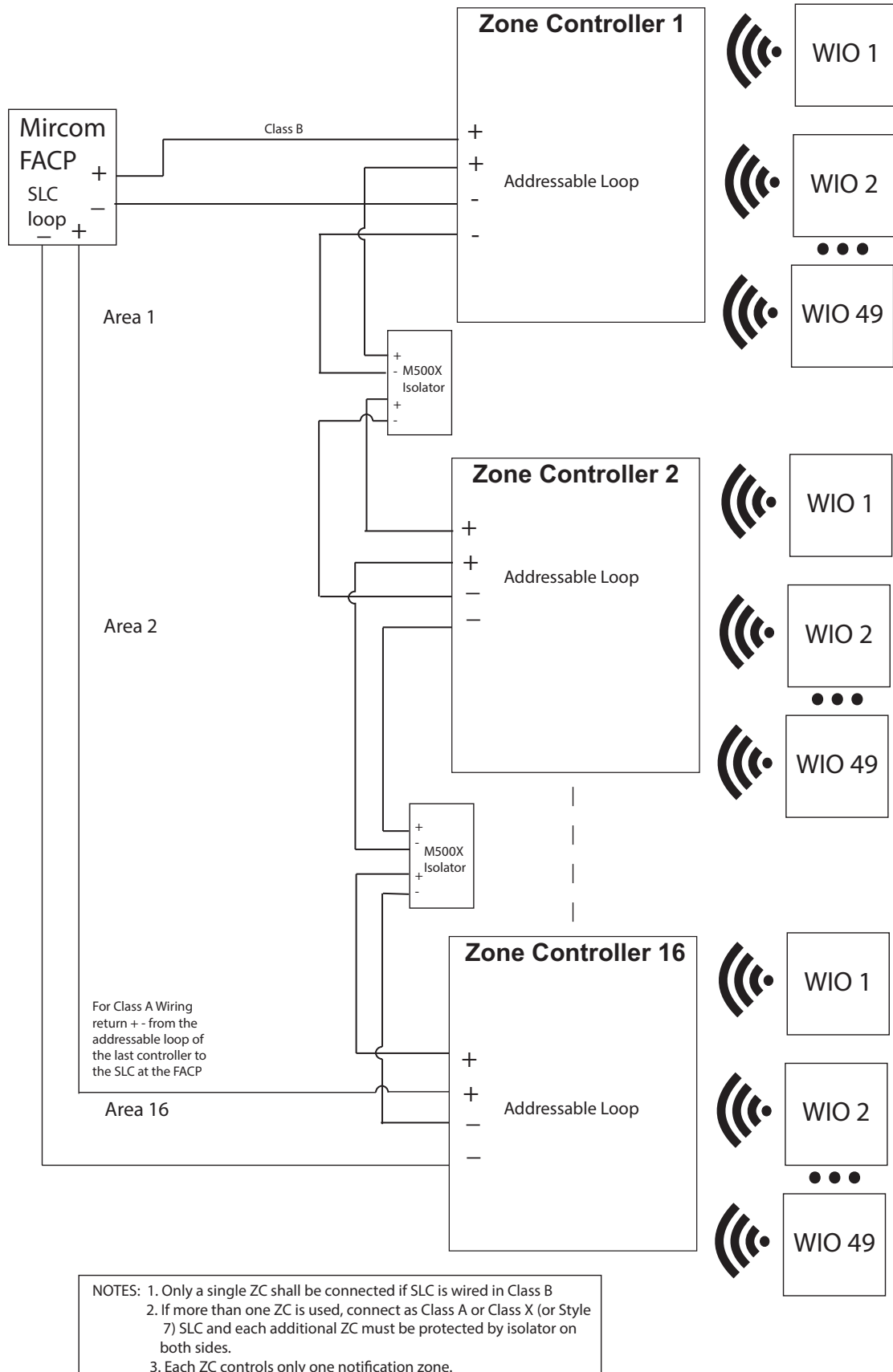
Figure 28   Addressable Loop SLC Wiring from a Mircom (Secutron) FACP
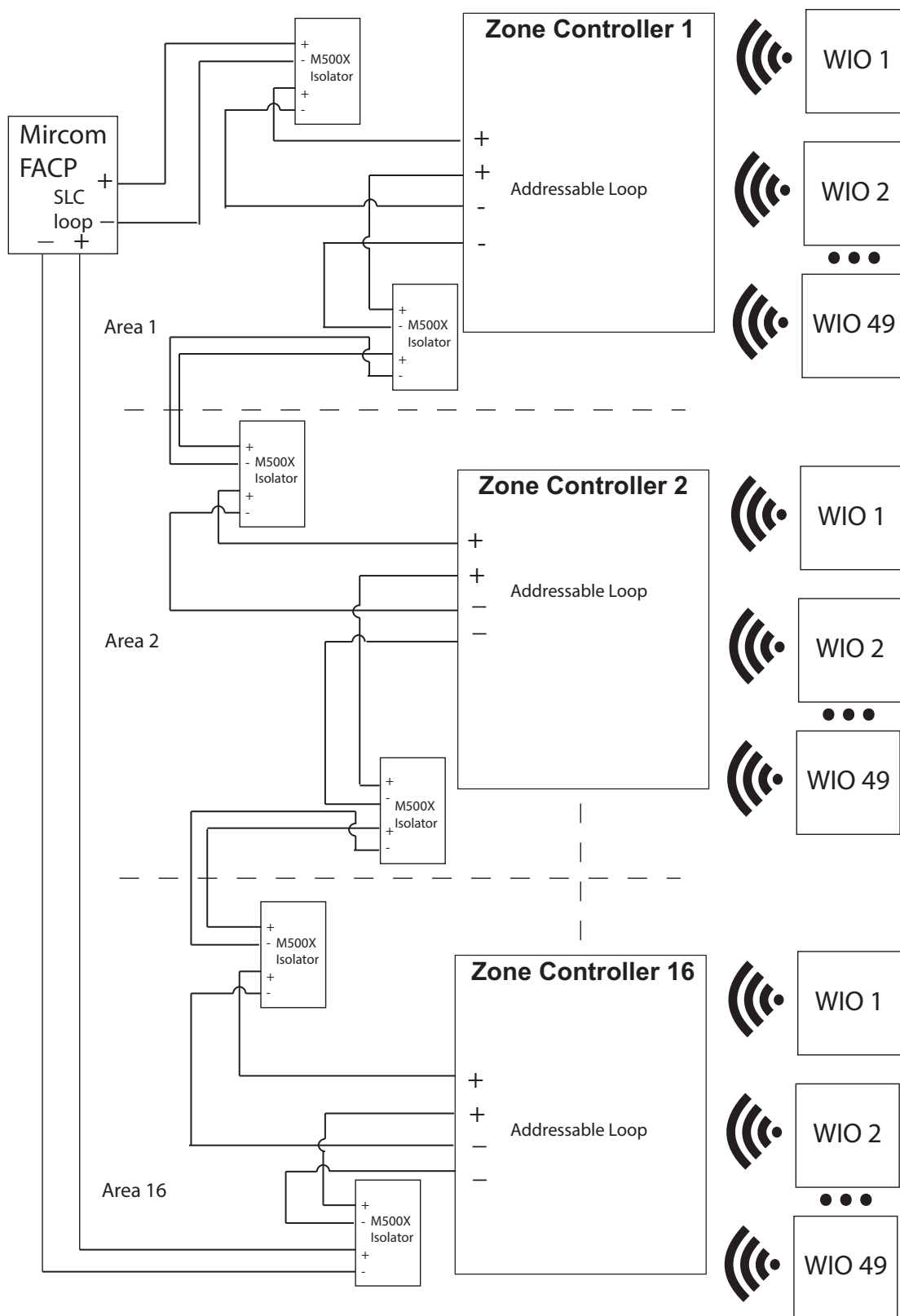
CLASS X WIRING

NOTE: Isolator shall be installed adjacent to the zone controllers.

Figure 29 Class X (or Style 7) **SLC Wiring from a Mircom (Secutron) FACP**

6.0 Indicators and Controls

6.1 Zone Controller LEDs and Controls (Ancillary for ULC)
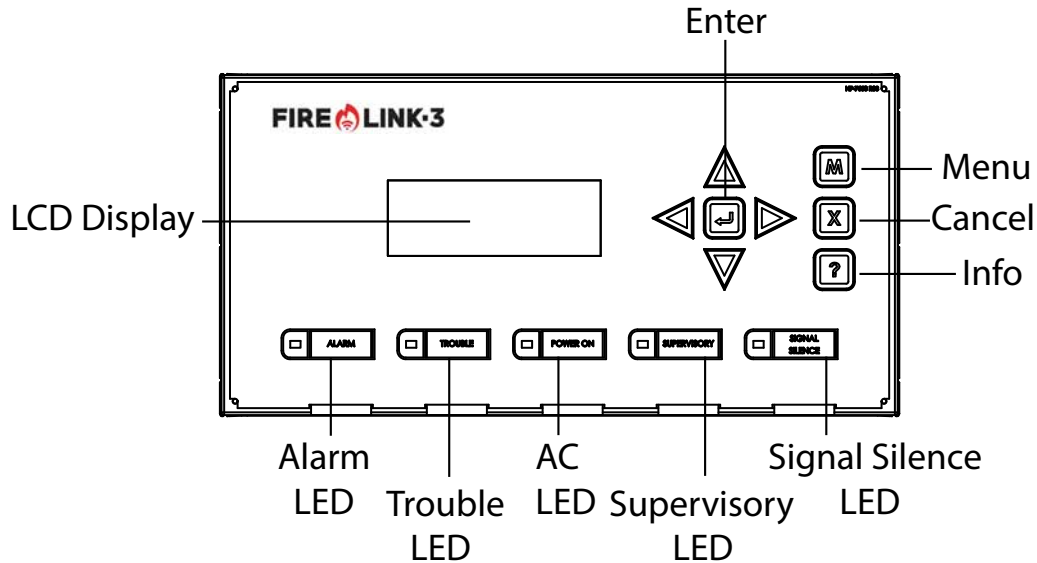
Figure 30 Zone Controller LEDs and Controls

6.1.1 Buttons

Reset (Password Protected): Press Reset to

- reset all Latching, Trouble Conditions.
- turn OFF Signal Silence.
- stop and reset all Timers.
- process inputs as new events.

The Zone Controller will net reset until the Signal Silence Inhibit timer has expired.

Signal Silence (Password Protected): Pressing the Signal Silence button when the Zone Controller is in Alarm turns on the Signal Silence LED and deactivates any Silenceable Indicating Circuits. Non-Silenceable Circuits are unaffected. Signals will re-sound uon any subsequent alarm.

This button does not function during the following:

- Any configured Signal Silence Inhibit Timer period.
- If Fire Drill has activated the Indicating Circuits.

Enter, Menu, Cancel, Info: Use these buttons to navigate the menu on the LCD display.

6.1.2 LEDs

The Zone Controller status indicator LEDs display conditions as tabled below:

Table 2 Description of Zone Controller LEDs

Condition	Indication	Colour	Action
Alarm	Alarm	Red	Fast Flash
Normal	AC	Green	Steady
Battery Fault	Trouble	Yellow	Slow Flash
Battery not Present	Trouble	Yellow	Slow Flash
AC not Present	Trouble	Green	OFF
		Yellow	Slow Flash
Ground Fault	Trouble	Yellow	Slow Flash
Input Open Circuit	Trouble	Yellow	Slow Flash
Weak-link Trouble	Trouble	Yellow	Slow Flash
CPU(WIO) Off line	Trouble	Yellow	Slow Flash

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Note: Any WIO trouble condition and location will be identified at the Zone Controller and the specific Zone Controller in trouble (and its location) at the Fire Alarm Control Panel.

FIRE ALARM CONTROL PANEL

ZONE CONTROLLER

Figure 31   Trouble Condition and Location

6.1.3 Buzzer

The buzzer is activated by any of the following:

- **Alarm:** steady
- **Supervisory:** fast rate
- **Trouble:** slow rate

6.2   Wireless Input/Output unit LEDs and Buttons
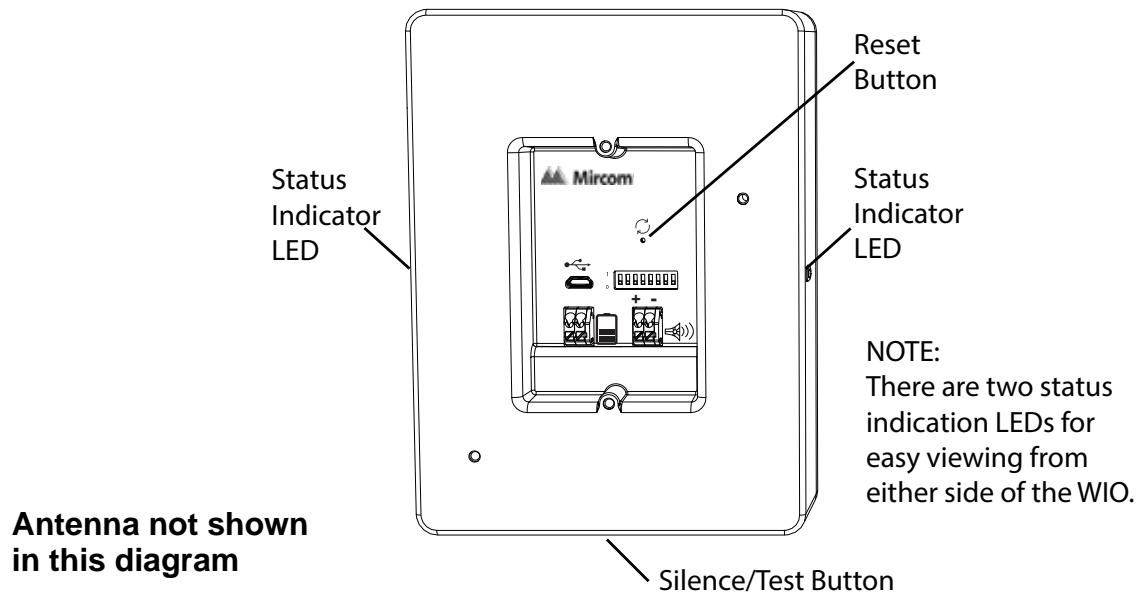
Figure 32   Wireless Input/Output LEDs and Buttons

Table 3 Description of Wireless Input/Output unit LEDs

Condition	Indication	Color	Action
Alarm	Alarm	Red	Steady
Normal		Green	Steady
Battery Fault	Trouble	Yellow	Slow Flash
Battery not Present	Trouble	Yellow	Slow Flash
AC not Present	Trouble	Yellow	Slow Flash
Output open/short Circuit Trouble	Trouble	Yellow	Slow Flash
Network Formation	Trouble	Yellow	Fast Flash
CPU(WIO) Off line	Trouble	Yellow	Fast Flash

6.2.1   Buttons

Reset Button (Point) - to reset the WIO unit, you must push this point with a small wire.

Silence Button (ULC only) - press this button momentarily to silence the signals.

Refer to Section 7.0 on page 31 for more specific information.

6.2.2 LEDs

Trouble Conditions

The Wireless Input/Output unit can identify any combination of the following 6 trouble conditions. These trouble conditions are indicated by both flashing yellow LEDs on the Wireless Input/Output unit. See Table 3.

Battery Fault

This trouble occurs if the Wireless Input/Output unit battery is low (below 3.1V), or if the battery pack connection is open, or if there is a fault in the battery pack that might appear as if the battery pack or cells within the pack have an open circuit.

CPU Off line

This occurs when the Wireless Input/Output unit is not responding to the Zone Controller's inquiry signal.

Battery not Present

Check for the presence of batteries and their conditions. If there are no batteries connected, there will be a battery "not present" trouble indication. Low voltage (below 3.1V) causes a battery trouble, also. If the battery trouble condition persists, replace the batteries as soon as possible.

AC not Present

This trouble occurs in the absence of AC power or when the AC power is at or below the AC Brownout threshold.

The AC Brownout voltage is any voltage less than 85% of the nominal rated voltage. In this case, the Wireless Input/Output unit's nominal AC operating voltage is 120 V. Therefore the AC Brownout voltage is any voltage less than 102 VAC, RMS.

Output Open/Short Circuit Trouble

This trouble occurs when there is an open or short circuit on the output. To correct the fault, check for open wiring, shorts, and missing EOL on that circuit.

7.0 Operation

7.1 Wireless Input/Output unit Operation

7.1.1 Normal Operation

In its normal state, the LEDs are green (see section 6.2 Wireless Input/Output unit LEDs and Buttons on page 29).

7.1.2 Button Operation (UL)

Press the button during normal operation to test the attached horn or horn/strobe at its nominal volume for the duration of the button press.

The horn or horn/strobe returns to its normal state when the button is released. The LEDs remain in their normal state (green) while the button is pressed.

7.1.3 Button Operation (ULC)

This button has two functions (FOR ULC APPLICATIONS):

Signal Silence:

Press and quickly release the button to silence the signal. This silences the horn locally.

Sound Test:

Press and hold the button to test the attached horn or horn/strobe at its nominal volume for the duration of the button press.

The horn or horn/strobe returns to its normal state when the button is released. The LEDs remain in their normal state while the button is pressed.

7.1.4 Button Operation while in Trouble Condition

Pressing the button while the Wireless Input/Output unit is in trouble condition activates the horn or horn/strobe at its nominal volume for the duration of the button press. The horn or horn/strobe returns to its normal state when the button is released. The LEDs remain in their Trouble State while the button is pressed.

7.1.5 Alarm Condition

When the Zone Controller enters alarm condition, it activates the horn or horn/strobe at its nominal volume. The Wireless Input/Output unit's LEDs are steady (non-flashing) red. The alarm condition is cleared with the FACP System Reset Command. Pre-existing trouble conditions or subsequent trouble conditions do not have any affect on the alarm condition.

7.1.6 Alarm Tones

Continuous temporal or alert alarm codes are available when using input 1 of the Zone Controller connection to the fire alarm control panel. Connection to all other Zone Controller inputs other than 1 will be either temporal or continuous. Temporal alarm code is the default. Alarm codes are changed using the Zone Controller configurator. Two stage is available for connection to Mircom Fire Alarm panels. DIP switches for the NAC devices shall be set according to the alarm code required.

Refer to the table below for single and two stage options for alarm tones.

Operation	Stage	Input 1 signal	NAC Device DIP switches	WIO Output	Sound
2-stage	1st	Alert	Temporal	Dropout Pulses	Alert
	2nd	Temporal 3			Temporal 3
Single Stage	NA	Temporal 3 Continuous	Selectable tones	24V DC	Will follow NAC Device DIP settings

Temporal

0.5 second on, 0.5 second off, 0.5 second on, 0.5 second off, 0.5 second on, 1.5 second off, then repeat.

Alert Code

0.5 second on 2.5 seconds off, then repeat
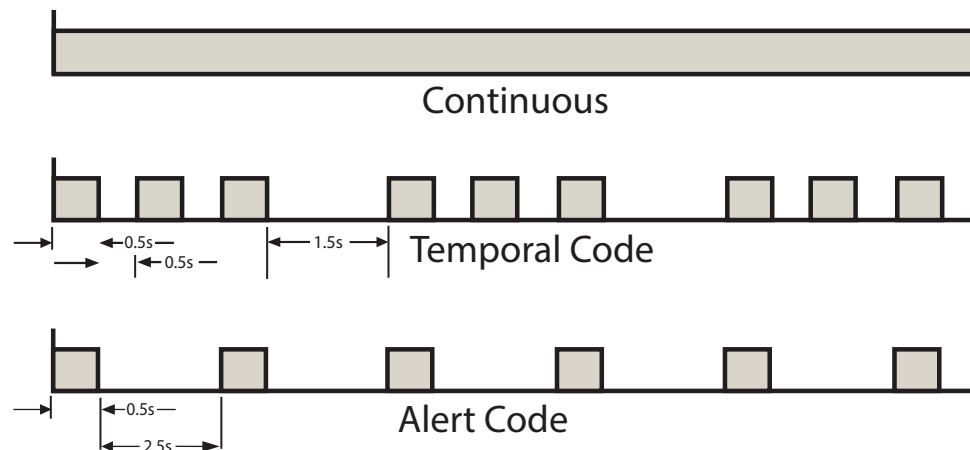
Figure 33   Temporal and Alert Alarm Code

7.1.7   Button Operation while in Alarm Condition (UL)

Pressing the button while the Wireless Input/Output unit is in alarm condition has no effect on the Wireless Input/Output unit. This is the default operation.

7.1.8   Button Operation while in Alarm Condition (ULC Dwelling Unit Use Only)

This ULC operation must be configured, default is UL operation. Pressing the Wireless Input/Output unit button while the Wireless Input/Output unit is in alarm condition silences the horn or strobe for 10 minutes and turns the LEDs steady red. After the 10 minute period has elapsed, the Wireless Input/Output unit re-activates the horn or strobe at its nominal volume and at the tone it was set to by the alarm.

Subsequent Button Operation

Pressing the button again less than 10 minutes after the button was pressed restarts the 10 minute timer.

Subsequent Alarm Command

If the Wireless Input/Output unit receives a second alarm less than 10 minutes after the button was pressed, it reactivates the horn or strobe at its nominal volume and at the tone set by the alarm. The 10 minute timer is restarted. Pressing the button again while the Wireless Input/Output unit is in this subsequent alarm condition turns off the horn or strobe and turns the LEDs steady red.

Alarm State Reset

When the Wireless Input/Output unit receives the System Reset command, all alarm conditions are reset. The 10 minute timer is also reset.

8.0 DIP Switch Settings for each ZC and WIO

Each ZC (Zone Controller) and WIO (Wireless Input/Output unit) must be configured with both a PAN ID and channel ID.

For all WIOs on the same floor or zone, set the channel ID and PAN ID to the same channel ID and PAN ID as the Zone Controller for that floor or zone. All devices in the same zone should have the same channel ID and PAN ID.

Refer to Figure 6 for DIP Switch location and to Figure 7 for DIP switch positioning on the ZC and to Figure 10 and Figure 11 for the WIO DIP switch location and positioning.

8.1 Channel ID Settings

Table 4 Wireless Input/ Output unit and Zone Controller Channel ID Setting

SW 1	SW 2	SW 3	SW 4	Channel ID
OFF	OFF	OFF	OFF	11 (Freq. 2405 MHz)
OFF	OFF	OFF	ON	12 (Freq. 2410 MHz)
OFF	OFF	ON	OFF	13 (Freq. 2415 MHz)
OFF	OFF	ON	ON	14 (Freq. 2420 MHz)
OFF	ON	OFF	OFF	15 (Freq. 2425 MHz)
OFF	ON	OFF	ON	16 (Freq. 2430 MHz)
OFF	ON	ON	OFF	17 (Freq. 2435 MHz)
OFF	ON	ON	ON	18 (Freq. 2440 MHz)
ON	OFF	OFF	OFF	19 (Freq. 2445 MHz)
ON	OFF	OFF	ON	20 (Freq. 2450 MHz)
ON	OFF	ON	OFF	21 (Freq. 2455 MHz)
ON	OFF	ON	ON	22 (Freq. 2460 MHz)
ON	ON	OFF	OFF	23 (Freq. 2465 MHz)
ON	ON	OFF	ON	24 (Freq. 2470 MHz)
ON	ON	ON	OFF	25 (Freq. 2475 MHz)
ON	ON	ON	ON	26 (Freq. 2480 MHz)

8.2   PAN ID Settings

Table 5 Wireless Input / Output unit and Zone Controller PAN ID Setting

SW 5	SW 6	SW 7	SW 8	PAN ID
OFF	OFF	OFF	OFF	1126
OFF	OFF	OFF	ON	1225
OFF	OFF	ON	OFF	1324
OFF	OFF	ON	ON	1423
OFF	ON	OFF	OFF	1522
OFF	ON	OFF	ON	1621
OFF	ON	ON	OFF	1720
OFF	ON	ON	ON	1819
ON	OFF	OFF	OFF	1918
ON	OFF	OFF	ON	2017
ON	OFF	ON	OFF	2116
ON	OFF	ON	ON	2215
ON	ON	OFF	OFF	2314
ON	ON	OFF	ON	2413
ON	ON	ON	OFF	2512
ON	ON	ON	ON	2611

9.0 Appendix A - Specifications and Features

GENERAL - ALL EXTENDED CIRCUITS ARE SUPERVISED

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Note: The **Minimum Signal Strength**, measured by LQI (Link Quality Indicator which is the quality of the received signal strength in the presence of ambient noise) for each WIO and ZC-301W link, must be 60. A 60 LQI or higher is acceptable. This measurement can be viewed via the LCD menu display at each Zone Controller.

Table 6 Wireless Input/Output unit Specifications

WR-3001R/W Wireless Input/Output unit (WIO)		
Operating: **Temperature** **Humidity**	-20°C to 49°C (-4°F to 120°F) Max. 93%@ 32°C non-condensing	
Electrical ratings	**AC line voltage**	120 VAC 60 Hz, 193mA /240 VAC 50 Hz, 124mA SUPERVISED
Wireless characteristics	**Broadcast Frequency**	2.4 GHz
	Transmit power	19 dBm
	Receive sensitivity	-100 dBm
Battery	**Type** **Manufactured by Mircom Model BT-026**	3.7 nominal voltage, SUPERVISED, 9000mAH Lithium Ion Pack With Protection Circuit Transfer to battery voltage when there is no AC power
	Battery Standby Time	24 hours Minimum 2 hours of operation (based on the connected notification appliance's candela setting) 29 hours and 5 minutes of alarm at 30mA
	Charging capability	9 AH batteries
	Maximum charging current	1.8 A
Maximum Load on NAC circuit	**200mA at 24VDC REGULATED**	
Compliance	**Applicable Standards**	UL864 and ULC S527 Control Units and Accessories
	Environmental	Use in indoor and dry environment only

Table 7 Zone Controller Specifications

ZC-301W Zone Controller (ZC)		
Operating: **Temperature** **Humidity**	-20°C to 49°C (-4°F to 120°F) Max. 93%@ 32°C non-condensing	
Electrical ratings	**AC line voltage**	120 VAC 60 Hz,121mA / 240 VAC 50 Hz, 75mA SUPERVISED
	Input Circuits	Maximum line impedance for SLC loop is 40 ohms and for a conventional detection zone 100 ohms. SLC: Maximum current is 2mA Input 1: Maximum current is 29mA
Wireless characteristics	**Broadcast Frequency**	2.4 GHz
	Transmit power	19 dBm
	Receive sensitivity	-100 dBm
Battery	**Type** **Manufactured by Mircom Model BT-026**	3.7 nominal voltage, SUPERVISED, 9000mAH Lithium Ion Pack With Protection Circuit, Transfer to battery voltage when there is no AC power
	Battery Standby Time	24 hours
	Charging capability	9 AH batteries
	Maximum charging current	1.8 A
Compliance	**Applicable Standards**	UL-864 and ULC S527 Control Units and Accessories
	Environmental	Use in indoor and dry environment only

10.0 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-conditions