

# FIRE-LINK<sup>®</sup>





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## **IMPORTANT INFORMATION :**

### **Power line conditions will vary from building to building!**

- Before quoting or installing a FIRE-LINK® system, a quick analysis of the Building's existing electrical distribution configuration and equipment should be performed. This will ensure a problem-free installation.
- **Our signals will NOT go through a building's transformer(s).**
- The rule of thumb is: one building, one transformer, one NMC-100/PPC-600.

If there are multiple transformers and/or multiple electrical rooms in the building, contact Mircom Technical Support for guidance before quoting ! Multiple transformers and meter banks with no direct connection for the phase coupler(s) through a house panel will require special installation instructions if deemed feasible by Mircom Technical Support.

- Signal quality can be affected by noise generating equipment. Noise generated by these devices may be above allowable FCC/DOC limits:
  - AC Variable Speed Motors, such as elevator motors, connected on the residential 220 volt feed and stepped up to 480V or 600V, can generate a lot of noise back onto the domestic power line feeds.
  - 12VDC Halogen Cluster Lighting can also affect signal quality and reception in suites and neighboring suites. This is the most common type of noise generating equipment that Dealers will encounter in the field (see Section 9.0 Trouble-Shooting guide). Include a buffer for filters when quoting.

Noisy environments can be rectified by the installation of power line noise filters which are available through Fire-Link Distributors, both wire-in and plug-in. Please see trouble-shooting guide in Section 9.0 of this manual.

- The FIRE-LINK® system is designed for applications of 253 ISDs per network or less. This quantity of 253 is at optimal power line conditions. With building attenuation (load/resistance) and equipment noise, this number could decrease substantially.

For a safety net, we are recommending average installs of a maximum 100 ISDs per network. Again, power line conditions will vary from building to building so it is not practical to set a specific number.

## 1.0 INTRODUCTION

### 1.1 System Overview

- Under ULC-S527, the FIRE-LINK system is an **accessory** to an existing fire alarm system.
- Under UL 985 and ULC-S545, the FIRE-LINK system is a **stand alone system**.
- The intended use is to readily increase fire alarm audibility in suites and living quarters without the addition of any new extensive wiring.
- The system, when configured as an accessory, is **NOT** for fire detection and no devices should be installed!
- The FIRE-LINK system uses a proprietary power line communications protocol to communicate between various FIRE-LINK devices using the existing 120VAC power line wiring.
- The primary components of the FIRE-LINK system include:
  - the **Network Monitoring Controller (NMC)**,
  - the **Passive Phase Coupler (PPC)**
  - and at least one (1) **In-suite Signaling Device (ISD)**.

The **NMC** is the main controller of the system network.

- It communicates with each uniquely addressed ISD device installed on the system.
- It receives the alarm signal from the existing FAC Panel and sends the alarm signal to each of the **ISD** units via the power line. Up to **253** ISD units can be installed on any given network (based on optimal conditions). However, **100** ISDs is the recommended limit for typical building installs because of building attenuation and electrical distribution profile. Power line conditions will vary building to building whether there are 10 or 250 suites in the building.

The NMC is in constant communications with all of the ISD units. Under normal conditions, the NMC interrogates each ISD for status. A trouble condition occurs on the NMC if any ISD is unplugged and loses communication or has low or missing battery power. If a fire alarm condition occurs, the NMC sends a broadcast alarm signal to each ISD putting all ISDs into alarm mode, thus sounding their piezo.

The purpose of the **PPC** is to couple the communication signals between the different phases of the buildings electrical wiring as the signals will not go through transformers.



**Important Notice:** The piezo on the NMC is for local annunciation ONLY and is not intended for alarm notification purposes. Alarm notification is provided by the ISDs.

### 1.2 System Set Up

The NMC can be configured in one of two ways:

1. **Master Mode** or
2. **Slave Mode** (Specified in Canada).

One of the primary differences is the way the alarms are managed.

1. In **Master Mode**, the **NMC** acts as a **stand-alone** unit in that it receives the alarm signals from and sends trouble signals to the Fire Alarm Control Panel (FACP) but the FACP has no other control of the operation of the NMC. The NMC receives the alarm signal from the FACP dry alarm contact. In this mode, 'Alarm Silence' must be initiated on the NMC to silence the ISDs regardless of any action taken on the FACP. This method will utilize one of the two alarm zones on the NMC for the alarm triggering.
2. In **Slave Mode**, the NMC is driven by the on-board **Bell Output Relay** tied into any **SPARE** Supervised Signal Circuit of the FACP. In this mode, if an 'Alarm Silence' is initiated on the FACP, it will cause the NMC to also silence all the ISD units. No reset action is required on the NMC.

**NOTE : In either Master Mode or Slave Mode, NO detection devices can be installed to the NMC alarm zone inputs.**

Each ISD unit has a unique factory ID called the '**VID**' number. This **VID** number must be entered into the NMC Job database and correlated to an **ADDRESS** number which is usually represented by a Suite Number. There are a couple of methods for entering the **VID** number and these will be discussed in **Section 4.0**.

To save time, it is strongly recommended that all ISD information be loaded into the NMC Database **prior to site installation** via the FIRE-LINKLOAD Windows® based download program using the Dealer supplied Barcode Scanner for the **VID** number entry.

### 1.3 General Features NMC-100

- Two initiating device circuits, class B/style B.
- Power line notification using system compatible ISD-1000 signaling units.
- One Bell Output Relay for alarm triggering through FACP signal circuit polarity reversal (Slave).
- One common alarm-actuated relay, form 'C'.
- One common trouble-actuated relay, form 'C'.
- 12V power able to be reset for 4 wire smoke detectors.
- Keypad entry and control.
- 4-Line LCD Screen for Status/Information Update.
- Integral battery charger.
- Battery Backup.
- Transformer mounted in cabinet.
- Cabinet with dead-front construction and lock.
- Extensive Transient Protection.

### 1.4 General Features ISD-1000

- Addressable Multi-Device Networking.
- Plugs into any standard 120V AC outlet.
- 24 Hour supervised rechargeable battery standby power.
- Silence able Piezo (10 Minute Timer – Canadian Version only).
- Becomes a 'BEACON' when it is unplugged in the alarm state.
- Is mobile during a fire so that Firemen can locate it.

### 1.5 Application

ULC 527 - Accessory to an existing fire alarm control panel for supplemental fire signaling in residential sleeping areas

ULC S545 – Residential Fire Warning System

UL985 – Household Fire Warning System with UL464 fire signaling

### 1.6 Specifications

**This document applies to the following products and product revisions:**

- **NMC-100 Rev 1.2A.**
- **ISD-1000 Rev 2.0A.**
- **PPC-600 Rev 1.0A.**

**ISD-1000 information:**

**Listed to UL 985: ISD-1000-MW, ISD-1000-MR**

Listed to ULC S527 and ULC S545: ISD-1000-MBW, ISD-1000-MBR

- M = Mircom.
- B = Bilingual (English/French) label which are silenceable (Canada).
- W = White, R = Red.

**NMC-100 Information: NMC-100-MW where:**

M = Mircom.

W = White, R = Red.

**Power Requirements:**

	NMC-100	ISD-1000	PPC-600
<b>VOLTS</b>	120VAC	120VAC	120/240VAC
<b>AMPS</b>	2.0	.5	.1
<b>Hz</b>	60	60	60
<b>WATTS</b>	240	60	24

**Operating Temperature:** 0°C to 35°C, 32°F to 95°F

**Operating Humidity:** 0 to 80% Non-Condensing

**Alarm Contact Rating: 5A 125VAC**

**Trouble Contact Rating: 5A 125VAC**

## 1.7 Relevant Codes and Standards

The NMC-100 Network Monitoring Controller is designed to meet the requirements of:

- **NFPA 72, 1999 edition.**
- **ULC-S527-99** - Standard for Control Units for Fire Alarm Systems (Accessory).
- **ULC-S545-M86** - Standard for Residential Fire Warning System.
- **UL985** - Household Fire Warning System Units.

The ISD-1000 In-suite Signaling Devices are considered 'modules' of the NMC-100 Control Unit of the 'Fire-Link' system.

The PPC-600 Passive Phase Coupler is designed to meet **UL508 and CSA C22.2 No.14-M94**

## 1.8 General Installation Requirements

When installing the NMC-100 control panel, the ISD-1000 In-suite Signaling Devices and the PPC-600 Passive Phase Coupler refer to this manual. When installing optional system components and compatible alarm initiating devices refer to the installation documents provided with those products.

## 1.9 Field Wiring

Field wiring recommendations in this document are intended as guidelines. All Field wiring must be installed in accordance with NFPA 70 National Electrical Code; and in Canada, the standard for installation ULC-S524, the most current Canadian Electrical Code, the National Building Code, the Provincial Fire Code and the Authority Having Jurisdiction (AHJ).

## 1.10 Compatible Devices

Use only UL and/or ULC Listed smoke detectors that are compatible with the NMC-100 Network Monitoring Controller as referenced in this manual.



## 1.11 System Verification

The complete fire signaling alarm system must be verified for proper installation and operation when:

- the initial installation is ready for inspection by the Electrical Inspector or the **Authority Having Jurisdiction**;
- any system component is added, modified or deleted;
- any major programming changes are made;
- system wiring has been altered or repaired;
- system failure due to external influences such as lightning, water damage or when extended power outages (>24 hrs) have occurred.

## 1.12 Standby Power

Battery Requirements: (Replace ONLY with Part Numbers below)

NMC-100 – 12V 12AH :Discovery Model D12120

ISD-1000 – 8X1.2-9.6V 1700mAH NiMH: Model – 004-00000-005

The NMC-100 provides standby battery support with a lead-acid rechargeable battery. The required battery is a 12V-12AH SLA Battery capable of providing 24 hours of standby power. Periodic inspection for damage and the batteries' ability to support the attached equipment is strongly recommended.

The ISD-1000 is provided with standby battery support by a pack of eight (8) 1.2 volt Nickel Metal Hydride rechargeable batteries capable of providing 24 hours of standby. This battery pack is supervised by the NMC control panel for low or missing battery warnings (Battery Fault), by address number and will be shown, by Address (suite) number on the NMC LCD screen. It is imperative that the ISD unit be inspected for either replacement of the battery pack and/or the ISD battery charging circuit be inspected and tested after receiving this warning! Periodic inspection for damage and the batteries' ability to support the attached equipment is strongly recommended. The ISD batteries are rated for a minimum 500 full discharge cycles over the life of each battery.

## 2.0 NMC-100 INSTALLATION

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### General Precautions:



**WARNING:** Several different sources of power can be connected to the NMC unit. Disconnect all sources of power before servicing. This unit and associated apparatus may be damaged by removing and/or installing circuit boards, modules or interconnecting cables or wiring while this unit is energized. Do not attempt to install or service or operate this unit until this manual is read and understood.

This unit should be installed and serviced by qualified personnel **ONLY**.



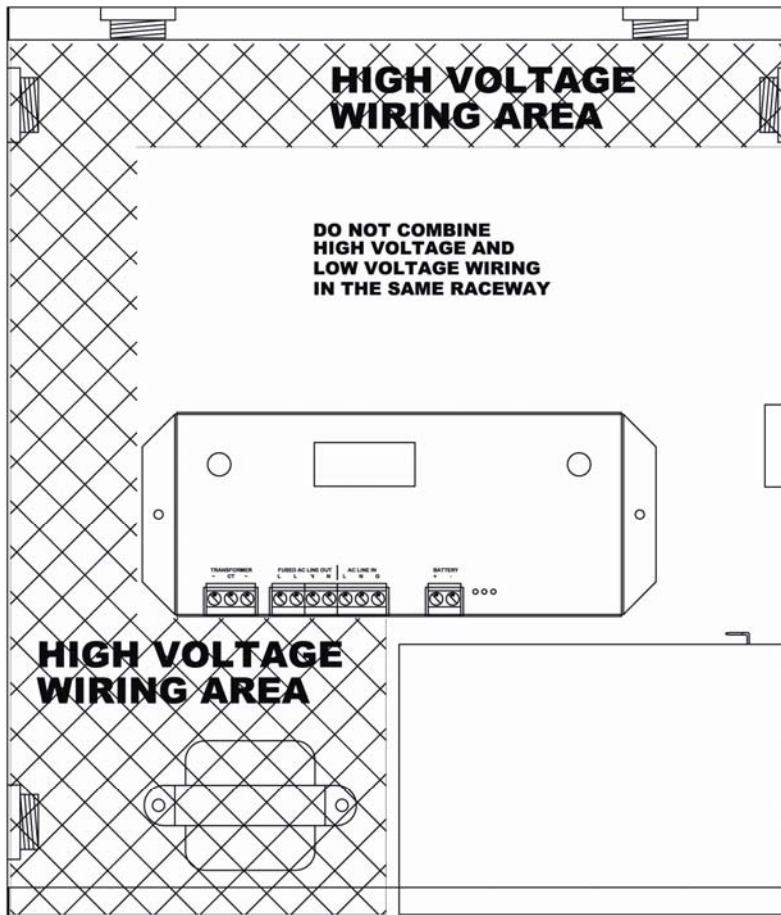
### **DO NOT:**

- Install the unit outdoors.
- Install the unit where it will be subjected to extreme heat, 120F (48C).
- Install the unit where it will be subjected to extreme cold, 32F (0C).
- Install the unit where it will be subjected to moisture.
- Install the unit in a hazardous location.
- Install the unit near flammable, explosive or corrosive chemicals or materials.
- Install the unit where it will be subjected to excessive dust or dirt.
- Install the unit near flame or sources of heat or ignition.
- Install the unit on or near sources of excessive vibration.
- Install the unit inside an electrical distribution or control panel.
- Install the unit near sources of electro magnetic interference (EMI) such as lighting ballasts or motor control centers.
- Install on the LINE side of any buck, boost or distribution transformer.
- Install on any service exceeding 250 Volts RMS.
- Install the unit near obstructions or where it could be subject to obstruction or prevent operation, servicing or maintenance.
- Install the unit where it could be subjected to physical damage.
- Install the unit on any surface other than a flat surface.
- Allow wiring to be exposed or installed in a manner in which the wiring could become exposed.
- Attempt to modify the unit in any way.
- Install, operate or service the unit without reading and understanding this manual.

## 2.1 Installing the NMC-100

This installation should be performed by a qualified Electrician. Observe the General Precautions stated above.

1. Locate the NMC in a suitable location in close proximity to the existing FACP.
2. Remove the front door and dead front panel and mount the NMC to the wall or any flat surface using the 4 mounting holes on the back side of the enclosure.
3. Locate all conduit entries into the NMC prior to removing any knock-outs. Do not modify the enclosure in any way.
4. Attach all conduits to the enclosure.
5. Using a maximum of 12AWG stranded wire, install the NMC on a separate 120VAC 15 Amp service. Separation of high voltage and low voltage wiring is required within the NMC enclosure. High voltage and low voltage wiring must not be placed in the same raceway.
6. In the low voltage wiring zone, the battery leads need to be routed separately from power-limited low voltage internal connections.
7. Using a maximum of 18AWG and a minimum of 24AWG for all zone, input and output wiring.



**FIGURE 14  
WIRE ROUTING**

A locking device is recommended on this service. If no spare circuit is available, power may be obtained from the FACP circuit as the NMC is considered an accessory to the FACP.



**DO NOT USE A POWER CORD OR ANY OTHER PLUGGABLE DEVICE.** Ground the enclosure using the ground lug in the lower left corner of the enclosure. Do not splice any power connections inside the NMC enclosure.

Minimum Wire Size: **18 AWG Shielded Cable**

Maximum Cable Length: **1,000 feet**

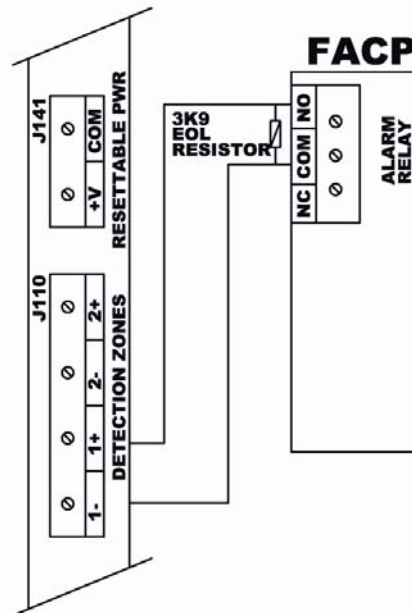
## **OPERATION:**



**WARNING:** As per UL/ULC regulations: When the NMC is triggered for alarm by the FACP, either in Master Mode or Slave Mode, NO other initiating devices may be wired to the NMC zone inputs.

### **2.2 Master Mode**

In **Master Mode**, when an alarm occurs, the NMC requires the pressing of both the '**ALARM SILENCE**' and '**RESET**' buttons to silence the ISDs and reset the alarm condition. Using Zone 1 (or Z2) inputs and the FACP Dry Alarm Contact Relay, connect zone wires to relay's common and normally open terminals with a 3.9K ohm, ¼ watt resistor in parallel (across the terminals) to supervise the wires. See **Figure 1 below** for the wiring schematic.



**Figure 1- NMC-Master Unit Wiring**

### 2.3 Slave Mode (Preferred method in Canada)

In **Slave Mode**, the NMC is wired into a spare FACP signal circuit. When an alarm condition occurs, the reversal of the bell output polarity will cause the NMC to alarm as well. When the FACP Signal Circuits are silenced, the NMC Bell Output Relay will reset to 'normal state' causing the NMC to silence the ISDs and return from alarm state to normal state. If the FACP re-alarms, this will cause the NMC to re-alarm as well. Connect the Signal Circuit wiring of the FACP to the NMC Bell Output Relay IN+ and IN- terminals, observing polarity. Wire the FACP signal circuit end of line resistor to the NMC OUT+ and OUT- terminals. **Figure 2 below** shows the wiring schematic.

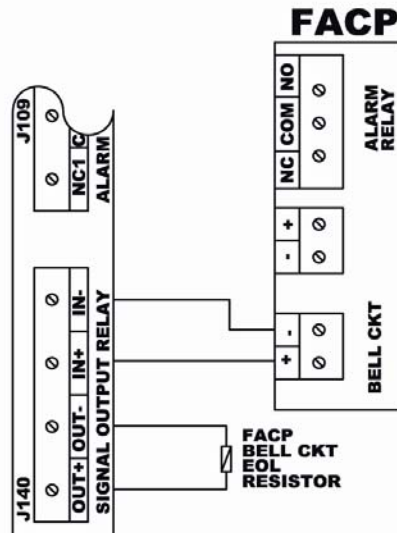


Figure 2- NMC- Slave Unit Wiring

### 2.4 Alarm Zones

See **Figure 3 below** for wiring schematic. **NOTE:** The resettable power terminal has an output voltage range of 10.70VDC to 20.27VDC.

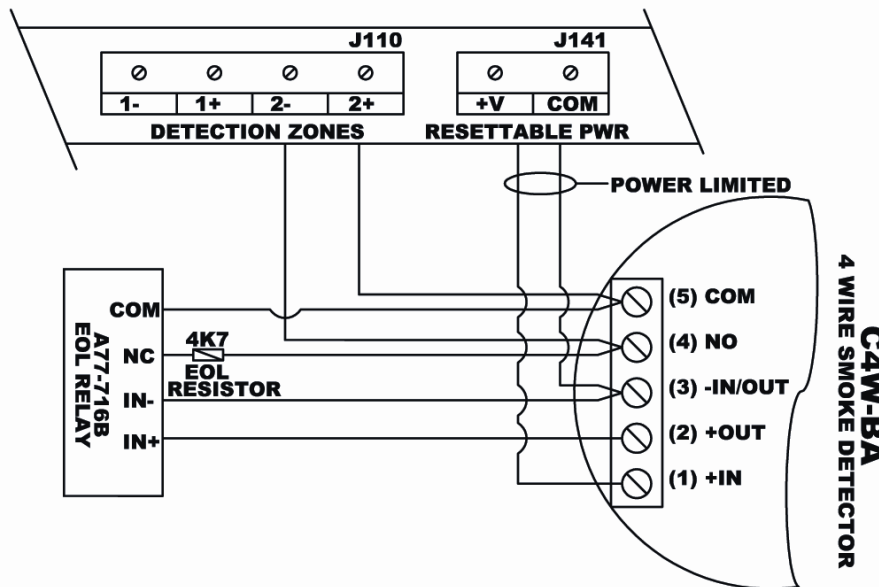


Figure 3- 4 Wire Smoke Detector

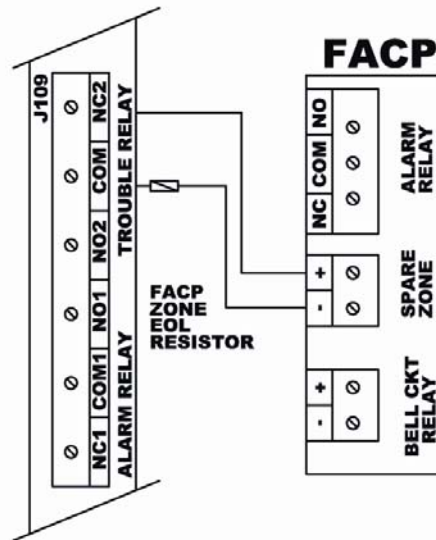
Under ULC-S527 Accessory, only one (1) alarm initiating zone may be used for the alarm triggering of the NMC control unit (Master Mode). The zone wiring must be connected to the dry alarm contact of the FACP with a 3.9K ohm resistor across the contacts (common and normally open). This will ensure supervision of the wiring from the NMC to the FACP.

Under UL985 and ULC 545 – Stand Alone Mode, both initiating zones may be utilized for contact devices. If smoke detectors are installed on either zone, a 12V DC, power limited, resettable power circuit is provided – Terminal strip J141 on the NMC main board. See compatible smoke detector. Smoke detectors installed in Stand Alone Mode should be tested at least once per year as per manufacturer's specifications.

**Four-Wire 12V DC Resettable Smoke Detector Power:** Terminal block J141 provides a power limited 12V DC resettable power circuit to power up 4 wire smoke detectors. A System Sensor C4W-BA photoelectric smoke detector is compatible with this system. A System Sensor EOL Relay A77-176B should be wired in to monitor this power circuit.

## 2.5 NMC-100 Trouble Contact Wiring

The NMC Trouble Contact must be connected to a separate available ALARM ZONE of the FACP. Connect the NMC Trouble Relay Common and N.C. Contacts to the FACP Zone inputs. An EOL resistor compatible with the FACP alarm zone must be installed in parallel or in series as shown in **Figure 4 below**.



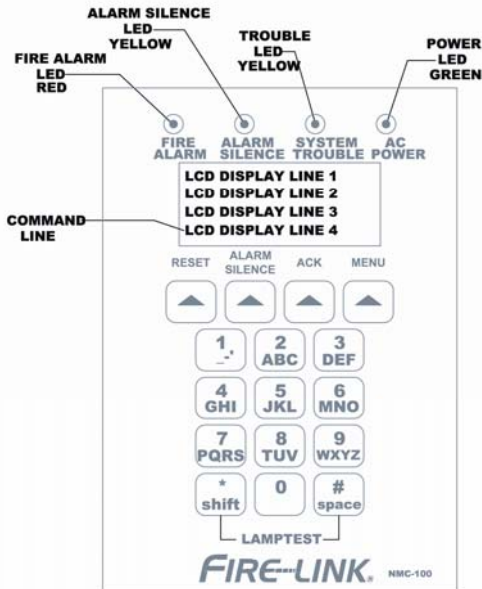
**Figure 4- Trouble Contact Wiring**



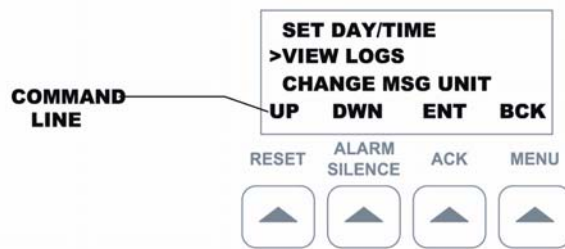
All above wiring should be verified by a third party (Installing Company).

## 2.6 Keypad and Display Operation

Refer to NMC Keypad Layout in **Figure 5** and **Figure 6** below.



**Fig 5- NMC Key pad**



**Fig 6- NMC Key pad Display**

It is recommended that you familiarize yourself with the operations of each of the keypad keys for installation and operation. Note that the following keys are context driven:

- **RESET**
- **ALARM SILENCE**
- **ACK**
- **MENU**.

While in programming mode, these keys are used to navigate through and make selections in the various menus.



**NOTE:** While in Programming Mode, a trouble condition will occur on the NMC but the local piezo will not sound.



**WARNING:** THE NMC WILL NOT RESPOND TO ANY ALARM OR TROUBLE CONDITIONS WHILE IN THE PROGRAMMING MODE.

While in Programming Mode, the bottom line of the LCD display becomes the Command Line. The keypad key directly below the text on the command line becomes the action on the command line. For example, if the command line appears as follows:

```
>DISPLAY VERSION
ADMINISTRATION
TESTS
UP DWN ENT BCK
```

The **RESET** becomes the 'Scroll Up' button. **ALARM SILENCE** becomes the 'Scroll Down' button, the **ACK** becomes the 'Enter' button and the **MENU** becomes the 'Back'

button.

Notice that the display has a menu pointer (>). Use the scroll up and scroll down keys to select the desired menu function then press **ENT** (Enter) to execute. Use the **BCK** (Back) button to back up or back out of a menu option or screen.

Following is a list of display abbreviations:

**UP** - Scroll Up  
**DWN** - Scroll Down  
**<** - Scroll Left  
**>** - Scroll Right  
**ENT** - Enter (execute or accept)  
**BCK** - Back One Menu Screen  
**NXT** - Next Entry  
**PRV** - Previous Entry

Only the command line function will be indicated in this manual. There will be times when numbers and characters will need to be entered into the NMC, such as the date, time, VID, etc. If, for example, it is required to enter the following:

1. **1BE8AF**
2. Press the **1** key
3. Press **2** key twice until **B** appears
4. Press **3** key until **E** appears, and so on.

When finished, press the **ENT** key to accept. Use the above keys in the same manner to enter these special characters:.,!\_:- ><\_-'()=!\@~#{}\$;% ^&[ ].

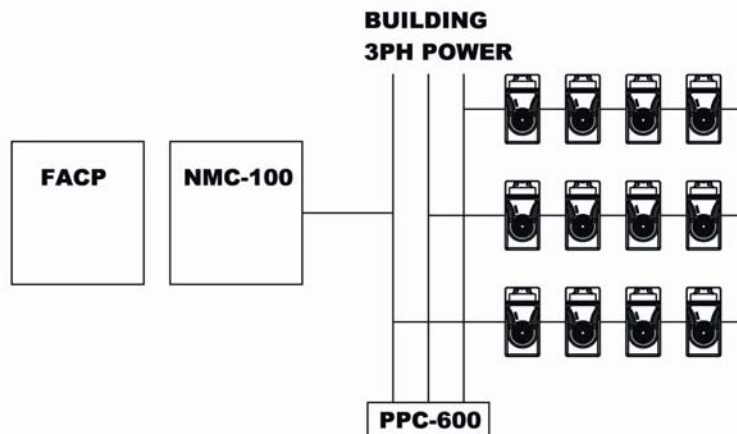


**NOTE:** The '**ENT**' key must always be pressed to accept the current value or changes. Even though the display may show a change in the display field, **the changes are not committed until the ENT key is pressed.**

When editing, it is not necessary to re-enter the entire value - only individual digits need to be changed. For example, if **1BE8AF** is to be changed to **1BECAF**, use the scroll keys <> to scroll to **8**, change **8** to **C** then press **ENT** to accept.

## 2.7 The NMC Network

The NMC and plurality of ISDs form a Master/Slave topology network in and of itself, when connected to the FACP (regardless of whether the NMC is installed as a Master or Slave to the FACP). The NMC acts as the Master and the ISDs are the Slaves on the NMC Network. **See Figure 7 below.**



**Figure 7- NMC Network Topology**



**The ISDs must be enrolled onto the network (see Section 5.13)** When an ISD is enrolled onto the network, the NMC assigns a 'Network ID' to each individual ISD. If an ISD is to be permanently removed, **it must be removed from the NMC database or a trouble condition on the NMC will occur, constantly reporting the missing ISD unit.** (See Section 5.14 – "Removing an ISD").

Each ISD is identified on the network by its **Address #** and **VID #**. These 8 characters **VID** numbers are factory assigned to the individual protocol chips and cannot be changed. These numbers must be enrolled onto the NMC network in order for the NMC to communicate with each of the ISDs. If these numbers are not entered into the NMC or entered incorrectly, the NMC will not be able to identify or locate the ISD.

The 5, or less, character alpha-numeric **Address #** is the friendly name of the ISD and is field programmable. It generally indicates the suite number or location of the ISD. The **Address #** can be edited if required.

The **VIDs** and **Addresses** should be entered into the NMC **prior** to site installation. This will help speed up the installation process. **VIDs** and **Addresses** can be entered directly from the keypad via the "**Manual Set Address**" menu or "**Auto Set Address**" menu for very small quantities, or manually via the Windows® based **FIRE-LINKLOAD** download program using the barcode scanner (Dealer purchased), for large quantity installs.

### The Routing Process – A Stable Network:

FIRE-LINK's '**MESH NETWORK**' is maintained by a unique routing process. As the power line can be a very harsh and noisy communications medium, one that is being constantly changed by the addition or movement of other electrical equipment, the NMC communications polling routine will establish new 'routes' if required to maintain the network integrity. That is, if the NMC cannot establish or maintain communications with an ISD unit, it will try and re-establish the link using other ISDs as repeaters. This will occur before and after recording the ISD unit(s) as missing on the NMC display. This routing is an ongoing, 'behind the scenes' process that ensures a stable communications network.

## 2.8 Panel Operation

The NMC Panel has two sets of keys (Function Keys and Alpha/Numeric Keys), four Status LEDs and a four line LCD display. The Function Keys are described as follows:

### RESET:

Resets the NMC after an alarm condition. This will put the NMC into the NORMAL state after all alarms are cleared. If using the Bell Output Relay, the reset of an alarm condition will be automatic from the FACP reset.

### ACK:

Acknowledges an alarm or trouble condition. When pressed to acknowledge a trouble condition, this will silence the NMC piezo. The yellow Trouble LED will continue to be on until the trouble is cleared. When pressed to acknowledge an alarm condition, this will silence the NMC piezo. The red Alarm LED will continue to be on and the ISDs will continue to sound.

### ALARM SILENCE:

The alarm silences the ISDs during an alarm condition. Pressing ALARM SILENCE will place a trouble on the NMC until reset is pressed.

### MENU:

This key accesses all of the menu forms for setting up the NMC parameters, enrolling the ISDs and viewing the event logs. When in the Menu forms, the Function Keys become menu navigation keys. The menu functions are displayed on the LCD display just above the Function Keys.

### Alpha/Numeric Keys:

These keys are used to enter data into the menu fields. See Programming section.

## LEDs

The four LEDs indicate the status of conditions on the NMC and are described as follows:

**AC POWER:** Green-ON indicates AC power is present and the NMC is powered up.

**SYSTEM TROUBLE:** Yellow-On indicates a trouble, or multiple troubles, exist on the system.

**ALARM SILENCE:** Indicates that the ISD units have been silenced during an alarm condition.

**FIRE ALARM:** Indicates a fire alarm condition initiated by either the FACP or by an alarm condition on the NMC's Zone 1 and/or Zone 2.

The LCD display shows all of the alarms and troubles on the system by scrolling up/down. It also shows all of the menu forms and parameter settings.

## 2.9 System Start Up

Before powering up the NMC, verify all wiring is correct. Energize the NMC. Install the 12.0V – 12.0AH SLA back up battery. If all wiring is correct, the following should be observed on the NMC:

- **Green Power LED:** ON
- **Yellow Trouble LED:** ON
- **Yellow Alarm Silence LED:** OFF
- **Red Alarm LED:** OFF
- **Piezo:** ON until silenced via **ACK** button
- **LCD :** In Trouble mode
  - (Devices Missing)
  - (Loss of Date/Time)

Input the date and time. Input ISD 'Job File' via download program or manually enter ISD info (VID and Address).

In menu, enroll (Auto-Program) ISD's. Investigate and correct any missing devices.

## 2.10 Missing and Unknown Devices

An ISD unit will show up either as a 'missing device' or an 'unknown device' during the enrolment process if it is

- On the NMC list and not found on the network.
- The VID number is keyed incorrectly.
- The ISD device is not plugged in or NMC unable to detect on network.
- Found but not on NMC keyed-in list:
- The VID number missed during keying in process.
- An extra ISD unit has been mistakenly installed on the network.

After the enrolment process, these units, by Address (Suite) # and/or VID #, will be listed for immediate and corrective action to be taken. Missing units will have to be deleted and Unknown units will have to be added.



**Note:** When the ISDs have been enrolled, the 'AC on' green LED will 'Flicker' indicating communications is taking place between it and the NMC. If 'flickering' is not occurring, try another nearby outlet. Flickering will also occur during a yellow and red LED as well. This 'flickering mode' is a good Tech tool to be used during the ISD installation process, but only after the enrolment process has occurred.

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## 3.0 PPC-600 INSTALLATION

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### 3.1 Wiring the PPC-600 Passive Phase Coupler



**NOTE:** This installation should be performed by a qualified Electrician!

Observe the General Precautions noted in Section 2.0, NMC. Locate and mount the PPC in close proximity of the building's 3-Phase "House" electrical distribution panel. This panel may provide power for the elevator, heating, etc. Install the PPC on its own 240VAC, 3 phase circuit breaker (or on three single phase 15 Amp breakers, **one on each phase**). A locking device is recommended on this service. If the PPC wires are insufficient in length to reach the breaker, install and use a junction box to make the connections. Do not modify the PPC in any way. The PPC can not couple signals across distribution transformers. The PPC can not couple signals from the load side of one transformer, to its line side and then to the load side of another. Therefore, **ONE NMC** and **ONE PPC** are required for **EACH** power distribution transformer in a given building.



**Reminder:**

- Ensure that the circuit breakers are turned '**ON**' after the PPC installation.
- Ensure that you have not installed the PPC into a timer controlled sub-panel or other timer circuit device.



**Important:**

Prior to quoting/installation, ensure that a spare 3 phase circuit is available in the 'House Panel' or otherwise a 3 phase sub-panel may need to be provided and installed for the PPC-600 installation.

Some buildings may have the electrical feed stepped down to either a 208V, 3 phase or 240V, single phase going directly into a meter bank and then out to the suites sub-panels. If no 'house panel' exists, it may be necessary to wire in the NMC using a specific suite's power and the phase coupler into any suite's sub-panel. If 3 phase, then into any two suite's sub-panels to insure you have connected to all three separate phases.

## 4.0 ISD 1000 INSTALLATION



**NOTE:** IT IS STRONGLY RECOMMENDED THAT ALL ISDs BE INSTALLED IN EACH SUITE **BEFORE** THE AUTOPROGRAMMING (ENROLMENT) PROCESS IS IMPLEMENTED. THE NMC WILL ESTABLISH ROUTERS (REPEATERS) AS IT IS ACTIVELY SEEKING EACH AND EVERY ISD ON THE NETWORK. IF THE ISDs ARE INSTALLED INDIVIDUALLY DURING THE ENROLMENT PROCESS, IT WILL TAKE LONGER AS NEW ISDs ARE INSTALLED AND NEW ROUTERS ARE ESTABLISHED! **SEE SECTION 5.10 and 5.15 and FIRE-LINKLOAD** download program manual.

**NOTE:** For installations in US, to meet the requirements of UL985, the use of mounting bracket part number 160-00000-001 is mandatory.


### 4.1 ISD-1000 Installation

Each ISD has both a unique Visible ID number (**VID**) and a constant (**hidden**) PIN number (**PIN**). The VID number of each ISD unit has to be entered into the NMC prior to installation. These numbers are correlated to each of the building's suite numbers using an '**ADDRESS**' number. A label has been provided on the rear housing of each ISD for installers to physically write down the suite/apt. number as each ISD is entered into the system program. **The suite/apt. number becomes the unique address** for tracking all ISDs on the network and it is imperative that they be entered for each ISD to be installed. **See section 5.10.**

ISDs can be entered into the NMC database by three (3) methods:

1. **Manual Set Address** (via NMC keypad for entering individual units)
2. **Auto Set Address** (via NMC keypad for entering small quantities, <10 or 15 – NO Job File archived)
3. **FIRELINKLOAD** Windows based program (serial port for large installs - A Job File saved for future downloads)

Once all ISD information is entered into the 'Job File' for that particular building and the ISD listing is reviewed for accuracy and then downloaded to the NMC (see FIRE-LINK Load manual), each ISD can now be installed in its' pre-assigned suite. This should be done by a technician from the installing company. The procedure is as follows:

- Plug the ISD into the **lower** receptacle of any duplex receptacle in the suite. It is recommended that a location be chosen such that it provides the optimum sound decibel output to the occupant and is free from any obstruction of the ISD grill, status LED and Test/Silence button. This receptacle  **must not be a switched or dimmer controlled receptacle.**
- Perform a visual inspection of the apartment/suite's lighting fixtures to ensure that there is no 12V Halogen lighting present. The 12V lamps are quite small compared to the 120V type. If any are present, a noise filter may have to be installed either at the light switch or fixture base or the ISD moved to another outlet which is on another phase. Multiple 12V halogens in the **same suite** will definitely require filtering.
- Auto-program (Enroll – see **Section 5.13**) the ISDs using the NMC menu driven keypad. Any problem ISDs not communicating will be advised upon enrolment completion. Enrolment process will take up to 2 minutes for a typical 40 unit install and about 10 minutes for a 120 unit install. Again, power line conditions and ISD quantities will dictate the total enrolment time.
- Each suite ISD will have their Yellow LED turn GREEN and flicker once communications has been established with the NMC. If the LED does not flicker, then it is not communicating with the NMC. A different outlet will have to be tried.  
**Note:** The ISD LED is a tri-colored LED. Yellow is a combination of the Red and Green colors and may not appear totally Yellow in close proximity. See Section 8.0 – Trouble-shooting Guide for Missing devices.
- Once the LED has turned GREEN and flickers, push the "Press to Silence And Test" button ("Press to Test" in US) to insure that the piezo is sounding correctly. A decibel reading should be taken at this point and recorded.

- Once all the ISDs are enrolled, the NMC LCD should display “SYSTEM NORMAL” with only the GREEN AC power LED on (after Date and Time have been entered).
- Note: Each ISD can be moved to another outlet location at anytime. A programmable delay feature (global) is available via the NMC keypad.  
Default is 90 seconds in Canada, 200 seconds in the US.
- The Verification process should now commence on the installed FIRE-LINK system.

Please refer to Section 7.0 for testing and maintenance of all ISDs on the network.

**For installing large numbers of ISD units in typical installations:** Use the Dealer ‘FIRE-LINKLOAD’ database and barcode scanner (Dealer provided).

#### 4.2 Installation Checklist (Quick-Start):

- In FIRE-LINKLOAD program, create and Input the ‘Job File’ database information.
- Go to ‘ISD’ input screen.
- Input Address (suite number) and check box if a message unit.
- Scan barcode (VID#) provided on back of ISD unit.
- Write this suite number in space provided on back housing of ISD unit. Use non-smearing ink/felt pen.
- Repeat for all ISD units for this network install.
- Connect serial cable to powered NMC (either now or preferably later on site).
- Go to ‘CONNECT’ in FIRE-LINKLOAD program.
- Download (Send Job) Job File database info to NMC.
- Go to site with all ISD devices.
- Install all ISD units into suites based on suite numbers written on back of ISD housing and check for 12V halogens in the suites. **If any found, turn them ON** until after enrolment is completed. **See Section 8.0 for missing ISD devices.**
- An Electrician should have installed the PPC and NMC unit prior, as per installation instructions.
- Power up NMC, install battery and input Date and Time via keypad menu.
- In NMC menu go to ‘Auto-Prgm’ and enroll ISD units.  
Enrolment time can take up to 2 min. for 40 ISDs, 10 min. for 120 ISD units.
- Any missing units should be rectified immediately. See **Section 8.0**, Trouble-shooting guide for Missing and Unknown devices.

## 5.0 NMC PROGRAMMING

### 5.1 The Menu Tree

See Figures 8-13 below for the NMC menu tree.

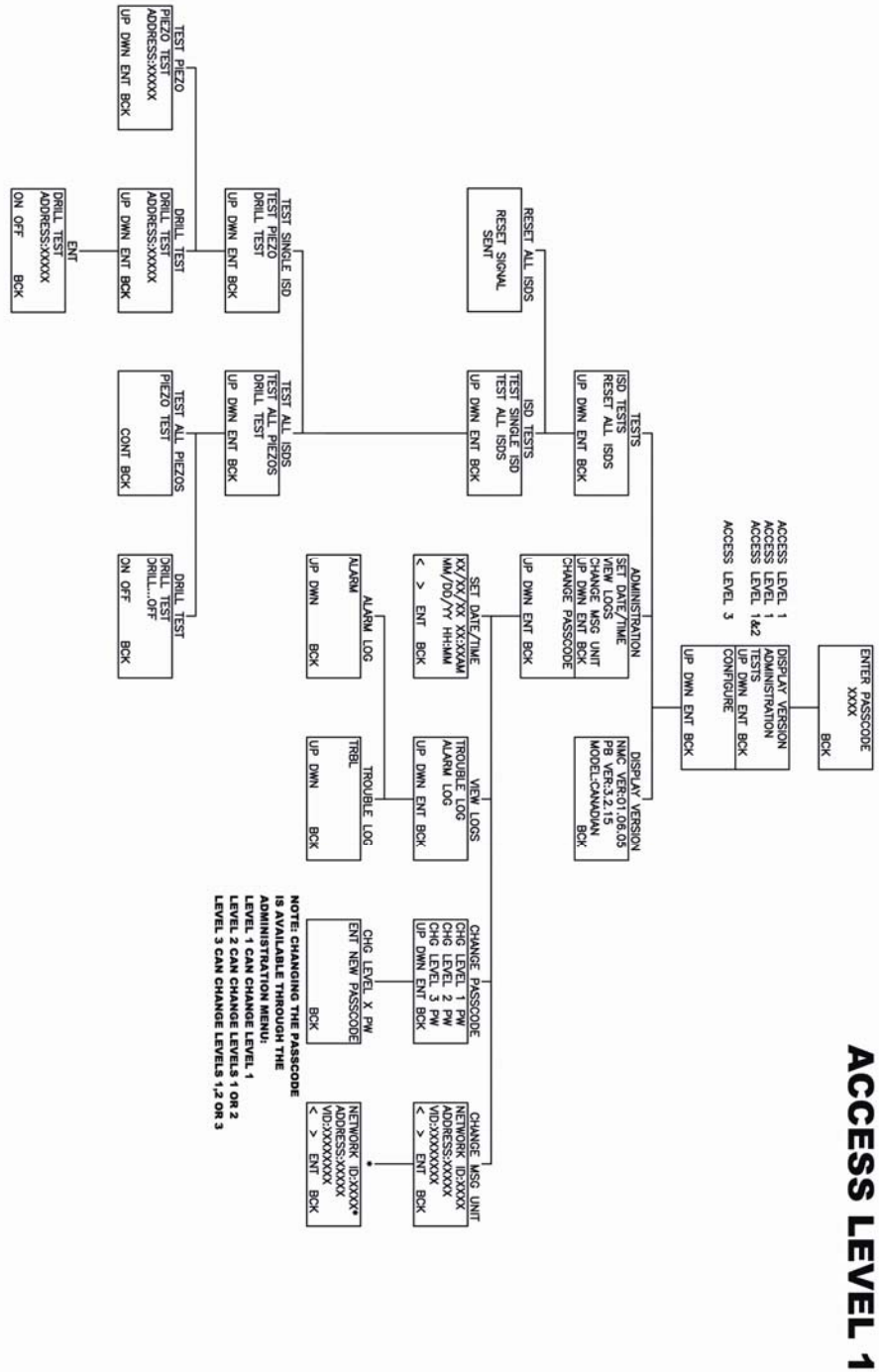


FIGURE 8: Access Level 1: Menu Tree Sheet 1

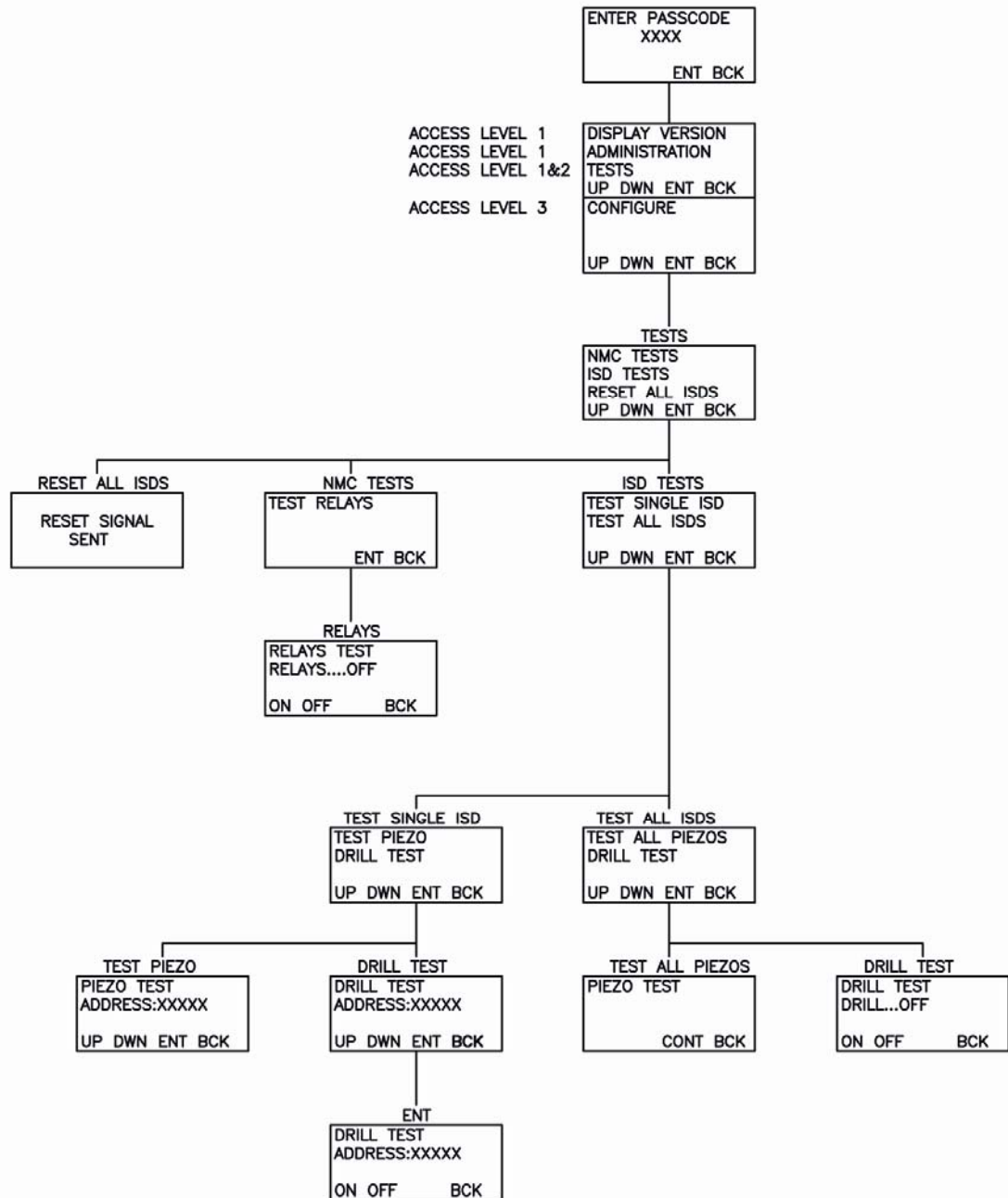


FIGURE 9: Access Level 2: Menu Tree Sheet 2

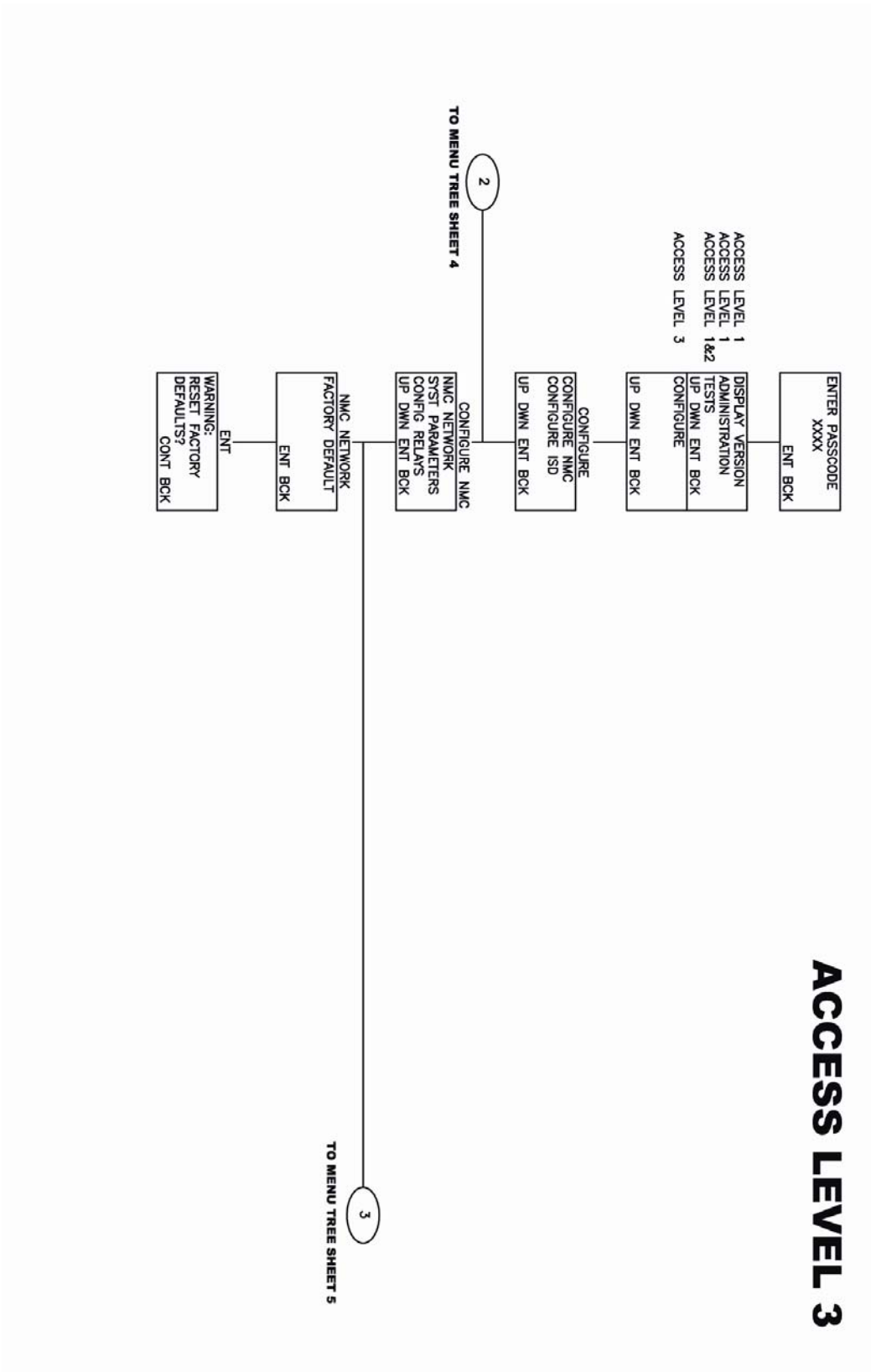


FIGURE 10: Access Level 3: Menu Tree Sheet 3



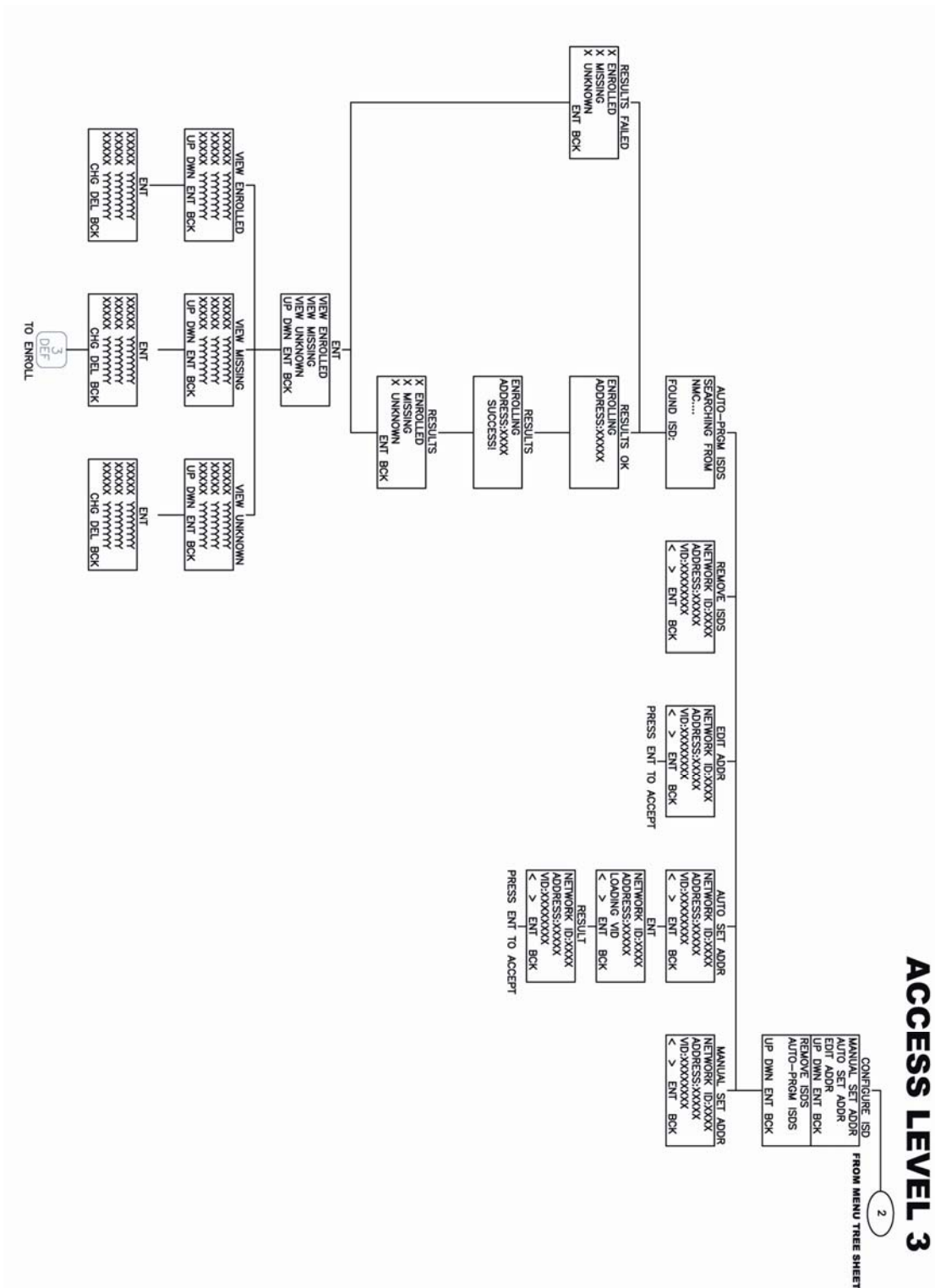


FIGURE 11: Access Level 3: Menu Tree Sheet 4

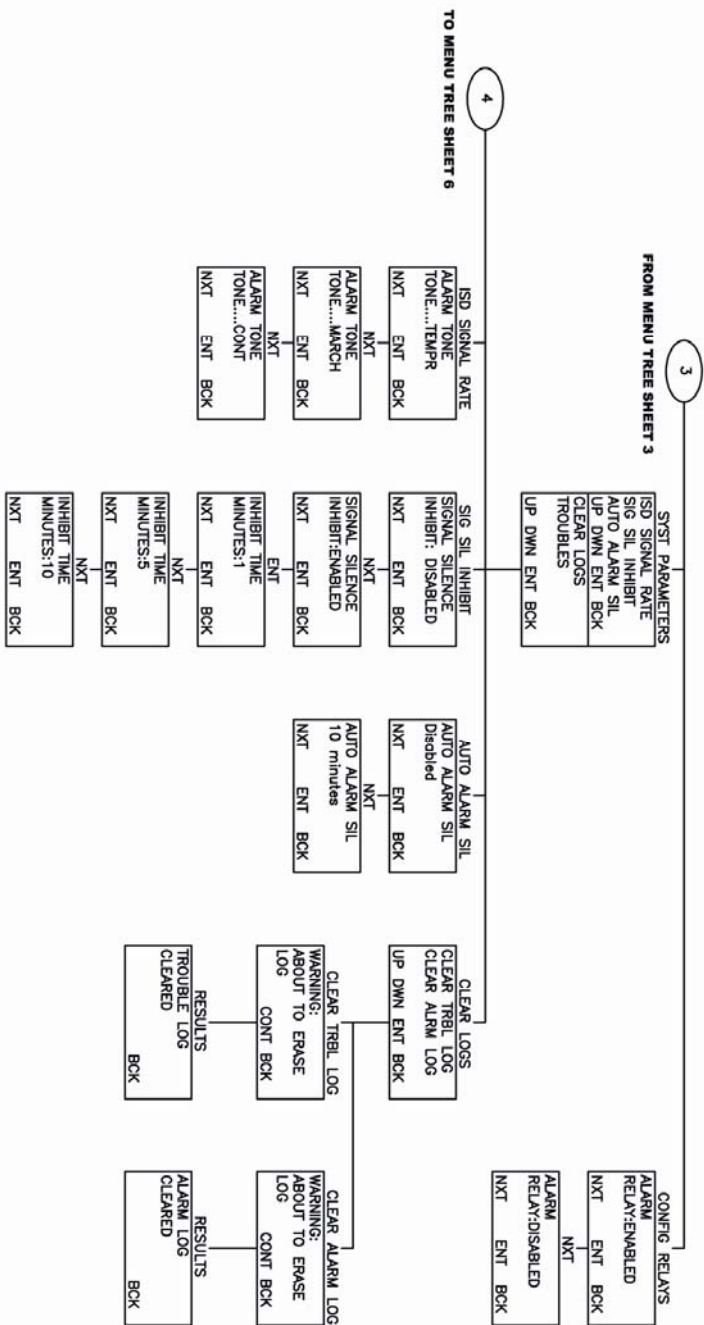
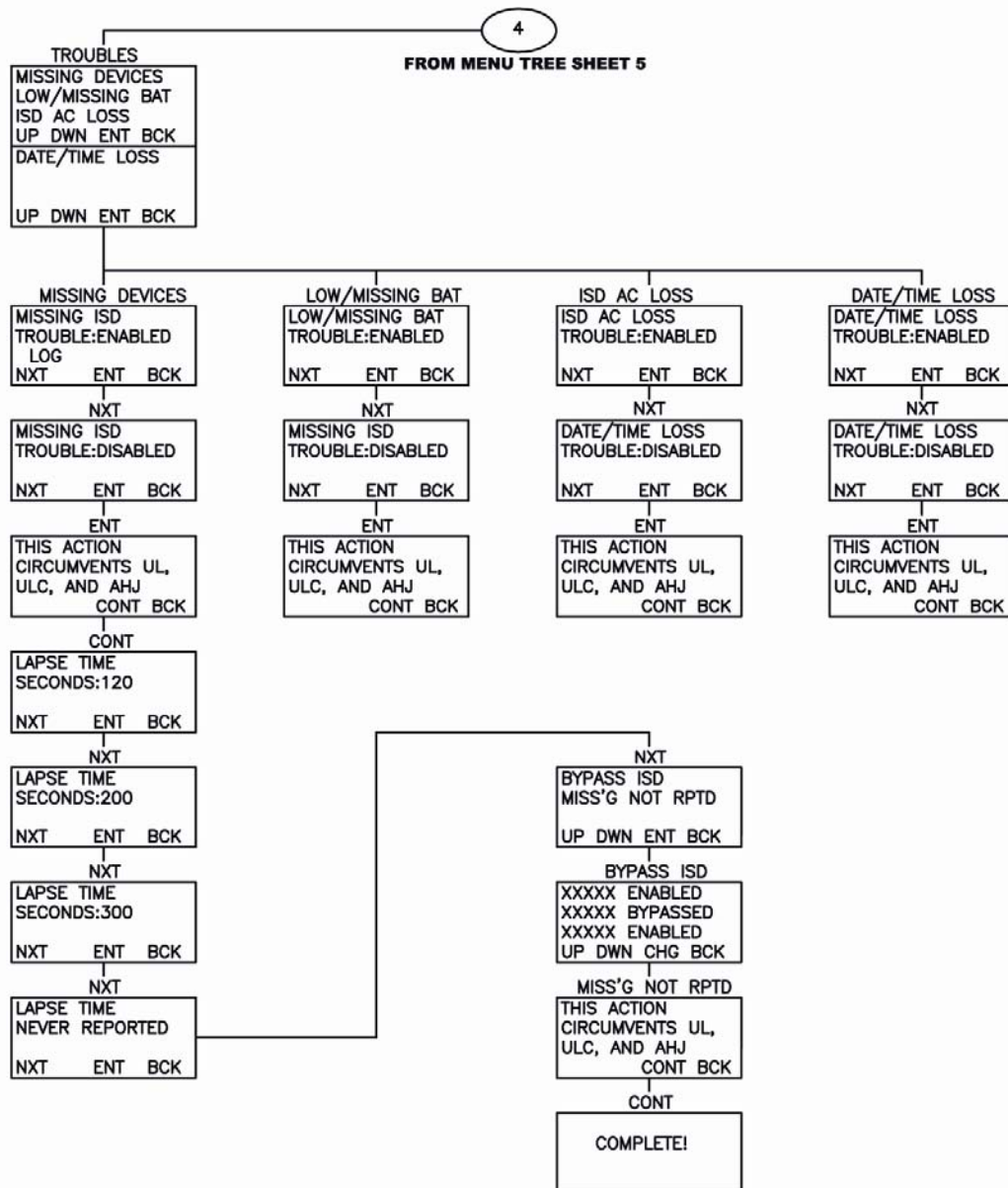


FIGURE 12: Access Level 3: Menu Tree Sheet 5



**FIGURE 13: Access Level 3: Menu Tree Sheet 6**

Note the pass code access levels for the various menu options. The various menu options will not be made available to the operator unless the proper access level has been entered.

## 5.2 User Pass Codes

There are three levels of pass code protection with Level 1 being the lowest access level and Level 3 being the highest. The following briefly describes the accessibility of each level:

### Level 1:

- Change date and time
- Change ISD to/from a 'Message Unit'
- View Trouble and Alarm Logs
- Perform system test of ISD's

### Level 2:

- Perform system test of the NMC.

### Level 3:

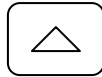
- Configure the Network, NMC and ISDs

Level 1 access cannot perform functions in Levels 2 or 3 however Level 3 access can perform all functions of Levels 1, 2 and 3.

**Pass code entry is the first menu option and must be entered before any other menu options can be entered.**

## 5.3 Entering Programming Mode

MENU



To access the menu screens, press the

key. This will put the NMC into a trouble condition but will NOT sound the trouble piezo.

The first screen to appear will be the **[PASS CODE]** screen. No other menu functions can be performed until a valid pass code is entered.



**WARNING: THE NMC WILL NOT RESPOND TO ANY ALARM OR TROUBLE CONDITIONS WHILE IN PROGRAMMING MODE**

## 5.4 Entering the Pass Code

Enter a 4 digit pass code. The pass code entered determines the level of access granted. The user will be advised if an invalid pass code has been entered.

ENTER PASS CODE

>XXXX

ENT

### Factory Default Passcodes:

Level 1 = 1111  
 Level 2 = 2222  
 Level 3 = 3333

To change factory default pass codes, see below.

## 5.5 Changing the Pass Codes

To change the pass codes, you must be logged into, or above, the level you are changing. Select:

[ADMINISTRATION] ⇒ [CHANGE PASSCODE].

DISPLAY VERSION >ADMINISTRATION TESTS UP DWN ENT BCK	SET DATE/TIME VIEW LOGS CHANGE USER ID UP DWN ENT BCK	>CHANGE PASS CODE UP DWN ENT BCK
---	--	-------------------------------------

Select the access level to change then enter new pass code

>CHG LEVEL 1 PW CHG LEVEL 2 PW CHG LEVEL 3 PW UP DWN ENT BCK	ENT NEW PASS CODE > UP DWN ENT BCK
---	--

## 5.6 Displaying the NMC Firmware version

>DISPLAY VERSION ADMINISTRATION TESTS UP DWN ENT BCK
---

At Access Level 1

Select [DISPLAY VERSION]

The NMC Version, the IC (PB) Version and the Model Version will be displayed.

NMC VER: 01.06.05 PBVER: 3.2.15 MODEL: CANADIAN BCK
--

There are three (3) Model Versions of firmware:

1. US UL985 (200 sec trouble delay, **NO** 10 min silencing timer, 5 min silence inhibit, 10 min auto alarm silence timer)
2. Canadian ULC527 (90 sec trouble delay)
3. Demo (15 sec trouble delay, **NO** missing NMC battery reporting, **NO** ground fault reporting)



**Demo units should not be sold. A Firmware change by the Factory will have to be performed first!**

## 5.7 Entering the Date and Time

Access Level 1

Select [**ADMINISTRATION**] ⇒ [**SET DATE/TIME**]

DISPLAY VERSION >ADMINISTRATION TEST UP DWN ENT BCK	>SET DATE/TIME VIEW LOGS CHANGE MSG UNIT UP DWN ENT BCK	11/23/04 17:35AM DD/MM/YY HH:MM < > ENT BCK
--	--	---

The date is MM/DD/YY format

The time is 12 hour HH:MM

When the cursor is over the AM/PM digit, press **1** to change to **AM**, or press **7** to change to **PM**. Press '**ENT**', then '**BCK**' out of programming. The time must be changed manually for Daylight Savings Time adjustments.

## 5.8 Alarm and Trouble Logs

Access Level 1

There are a total of 900 entries combined for alarm and trouble log archival. Once this number is surpassed, the oldest entry will be dropped from history and replaced with the newest.

Select [**ADMINISTRATION**] ⇒ [**VIEW LOGS**]

DISPLAY VERSION >ADMINISTRATION TEST UP DWN ENT BCK	SET DATE/TIME >VIEW LOGS CHANGE MSG UNIT UP DWN ENT BCK	ALARM LOGS TROUBLE LOGS UP DWN ENT BCK
--	--	--

## 5.9 Resetting the NMC to the Factory Defaults (required after an NMC firmware update)

Access Level 3

To reset the Factory Defaults, select [**CONFIGURE**] ⇒ [**CONFIGURE NMC**] ⇒ [**NMC NETWORK**] ⇒ [**FACTORY DEFAULT**].

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	>NMC NETWORK SYST PARAMETERS CONFIG RELAYS UP DWN ENT BCK	>FACTORY DEFAULT UP DWN ENT BCK
---	---	--	------------------------------------

WARNING: RESET FACTORY DEFAULTS? CONT BCK	RESETTING NMC TO FACTORY DEFAULTS PLEASE WAIT..... CONT BCK
--	--

There will be a 1 second delay between displays of 'Resetting Pass codes', Followed by 'Resetting System Parameters', 'Resetting ISD Settings' (20 sec), 'Resetting Trouble Logs', 'Resetting Alarm Logs', completing by the final acknowledgement of '**Factory Defaults Set**'.

### 5.10 Retrieving the ISD's VID number

Access Level 3

For input of small quantities of ISD units (say <15) you may use this 'retrieval process,' instead of using the '**Manual Set Addr**' menu or the laptop database download program. This feature will automatically detect the VID number of an ISD and will have to be correlated to an Address (Suite number). This operation may be performed with a temporary installation of the NMC or using a permanently field-installed NMC.

Plug an ISD into a nearby receptacle.

Select [**CONFIGURE**] ⇒ [**CONFIGURE ISD**] ⇒ [**AUTO SET ADDR**].

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	CONFIGURE NMC >CONFIGURE ISD UP DWN ENT BCK	MANUAL SET ADDR >AUTO SET ADDR EDIT ADDR UP DWN ENT BCK	NETWORK ID: XXXXX ADDRESS: XXXXX VID: XXXXXXXX < > ENT BCK
---	---	--	---

Enter the 5 digit '**ADDRESS**' of the ISD such as the suite number or room number followed by **ENT**. (Refer to 5.17 – for Message Units at this point). The suite number should be entered such as: **00103** or **0206B** or **0206B\*** (\* used for Message Unit only, see 5.10). This will start the process of retrieving the VID. When the VID is retrieved, it will be displayed. Hit '**ENT**' again to accept the VID. (The Network ID remains a constant).



**Remember to write this 'Address' (the suite/room number) in the space provided on the rear housing of the ISD unit. The 'Address' becomes the permanent identity of the ISD device.**

This process will retrieve the VID number for **ONE UNIT ONLY** and **ONLY ONE UNIT AT A TIME**. Unplug the ISD and repeat these steps with all other ISD units.



**NOTE: This process will not enroll the units.**

See Sections 5.13 –single ISD and 5.15 (single ISD) for Enrolling ISDs onto the Network (**Auto program**). This process is only intended to replace the 'MANUAL SET ADDR' operation for single ISD unit entry whereby the VID number is entered manually in lieu of being automatically retrieved.

### 5.11 Message Units

Access Level 1

A Message Unit is an ISD that will notify an individual, such as the Building Manager, of a trouble condition on the system. A Message Unit may be installed anywhere on the NMC network and any number of Message Units may be created.

When a trouble is indicated by the NMC, it will cause the ISD Message Unit to 'chirp'. This trouble indication signal generated by the Message Unit is a brief chirp on 5 second intervals for up to 30 minutes. The message unit will stay in 'chirp mode' until either the **Press to Silence** button (**Press to Test** on US models) on the Message Unit ISD is pressed or the NMC '**ACK**' button is pressed or the NMC trouble condition is corrected and restored.

## To create a Message Unit ISD:

Select [ADMINISTRATION] ⇒ [CHG MSG UNIT].

DISPLAY VERSION >ADMINISTRATION TESTS UP DWN ENT BCK	SET DATE/TIME VIEW LOGS >CHG MSG UNIT UP DWN ENT BCK	NETWORK ID: XXXXX* ADDRESS: XXXXX VID: XXXXXXXX < > ENT BCK
---	---	--

Use the < or > keys to select the desired device and press the asterisk \* key to change it to a message unit, or to change it from a message unit. Press **BCK** to exit.

The **Network ID** will have an asterisk \* next to the upper right of the number if it is designated a message unit.

## 5.12 Editing an ISD's Address (Suite #)

Access Level 3

Use this selection to edit the ISD ADDRESS, VID numbers. Select [CONFIGURE] ⇒ [CONFIGURE ISD] ⇒ [EDIT ADDR]. Use the < > keys to select the desired unit. Hit **ENT** to select desired field to edit. Use < or > to scroll left or right. Hit **ENT** to commit changes. VID numbers **cannot** be edited.

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	CONFIGURE NMC >CONFIGURE ISD UP DWN ENT BCK	MANUAL SET ADDR ..AUTO SET ADDR >EDIT ADDR UP DWN ENT BCK	NETWORK ID: XXXXX ADDRESS: XXXXX VID: XXXXXXXX < > ENT BCK
---	---	--	---

For enrolling a single ISD : Go to 'EDIT ADDR' menu, Press '8' and '9' simultaneously, go to 'VIEW MISSING' menu and press 'ENT'. Choose the unenrolled ISD you want to enroll and press '3'. 'ENROLL SUCCESSFUL' should appear.

## 5.13 Auto Programming (Enrolling) ISDs onto the Network

Access Level 3

After any ISD (one or more) has been entered into the NMC database either manually or via the FIRE-LINK Load program, it must then be 'enrolled' onto the network. Use this menu selection to enroll new ISDs onto the network. **Please note that the enrolment routine will take about 2 minutes or less for 40 ISD units and as much as 10 minutes for 120 units.**



**IT IS STRONGLY RECOMMENDED THAT PRIOR TO ENROLLING THE ISDs ONTO THE NMC NETWORK, THAT ALL ISDs BE INSTALLED IN THEIR RESPECTIVE SUITES. DURING THE ENROLMENT PROCESS THE NMC WILL CREATE 'ROUTERS' (repeaters). THIS WILL SAVE CONSIDERABLE TIME DURING THE ENROLMENT PROCESS IF THIS ROUTING PROCESS ONLY HAS TO BE DONE ONCE BY THE NMC AND NOT EVERY TIME A NEW ISD IS INSTALLED!**



Using the FIRE-LINKLOAD download program, send the 'Job File' to the NMC. Once you have linked the laptop, the NMC will respond with 'Connection Established', 'Sending ISD List' and 'Sending System Parameters'. Go then to **'AUTO-PRGM ISDS'** via the NMC keypad.

Select [**CONFIGURE**] ⇒ [**CONFIGURE ISD**] ⇒ [**AUTO-PRGM ISDs**].

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	CONFIGURE NMC >CONFIGURE ISD UP DWN ENT BCK	EDIT ADDR REMOVE ISDS >AUTO-PRGM ISDS UP DWN ENT BCK	SEARCHING FROM NMC..... FOUND ISD: (address) BCK
---	---	---	---

As each ISD is found, it will correlate this with the NMC List and display the suite Address. It will then commence enrolling procedures for all ISDs found displaying **'ENROLLING ADDRESS : xxxxx, SUCCESS!'**

Enrollment is a two step process. The first process, when completed, will display the following :

XX ENROLLED YY MISSING ZZ UNKNOWN ENT BCK
--

**Enrolled** = Number of ISD devices enrolled so far

**Missing** = Not found on Network.

**Unknown** = VID number found does not match number entered into NMC List.

The second process will, dependent on quantity of ISDs, display the following:

VIEW ENROLLED >VIEW MISSING VIEW UNKNOWN UP DWN ENT BCK
--

Select **VIEW MISSING** and press **ENT** to display the list of ISDs under this category.

Select an ISD and press **<ENT>** to select and then press **'3'** to enroll. The window should display **[ENROLL SUCCESS!]**. This will take you back to the first window to select another missing ISD.

**Repeat this process ( <ENT>, then '3') until all ISD's on displayed list have been enrolled.**

If the unit does not enroll, it will display **[ENROLL FAILURE!]** and will take you back to ISD displayed list.

If this occurs, try enrolling this device again. If not, then skip unit and refer to Section 8.0 –Trouble-shooting Guide in the Manual.

For UNKNOWN DEVICES :

VIEW ENROLLED VIEW MISSING >VIEW UNKNOWN UP DWN ENT BCK	RM209 7735402A RM307 77351651 >RM310 77364011 CHG DEL BCK
--	--

Selecting **<DEL>** while an ISD is highlighted will result in it being added to the MISSING category.

By selecting **<CHG>**, you will be able to edit the VID number to the correct number to enroll this device.

Use < and > to move the cursor over the ADDRESS (suite number) and/or VID number to EDIT.  
Press **ENT** to save changes. Press **BCK** to return to the previous screen(s).



**Note:** Selecting <DEL> while a device is highlighted will result in the following action:

- If **ENROLLED**, it will be removed from the NMC list.
- If **MISSING**, it will be removed from the NMC list
- If **UNKNOWN**, it will be added to the **MISSING** category.



**Note:** Enrolled ISD units only will have their Green LED 'Flicker' during communications with the NMC.

## 5.14 Removing an ISD from the Network

If a working ISD is to be removed from the network and is to be reused at a later date, or used on a different network, it should be removed from the NMC network to which it is currently assigned. If the ISD is not removed, it will display as a **Missing** device and put the NMC into trouble. If used in another building's network without being removed, it will show up as an **Unknown** device.

Use this option to remove an inoperable ISD unit as well before installing a replacement unit. Leave or re-install the ISD into any AC outlet.

Select [**CONFIGURE**] ⇒ [**CONFIGURE ISD**] ⇒ [**REMOVE ISDS**].

Use < or > to select the desired unit. Press **ENT** to commence ISD removal.

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	CONFIGURE NMC >CONFIGURE ISD UP DWN ENT BCK	EDIT ADDR >REMOVE ISDS AUTO-PRGM ISDS UP DWN ENT BCK	NETWORK ID: XXXXX ADDRESS: XXXXX VID: XXXXXXXX < > ENT BCK
---	---	---	---



**NOTICE:** TO PURGE THE ENTIRE ISD LIST FROM THE NMC, PRESS '8' AND '9' SIMULTANEOUSLY WHILE IN THE 'REMOVE ISDS' menu. ISD addresses will be shown being removed.

## 5.15 Adding an ISD VID number manually

Access Level 3

This process will **add an ISD manually** to the network via the NMC Keypad **without** retrieving the VID # automatically.

Select [**CONFIGURE**] ⇒ [**CONFIGURE ISD**] ⇒ [**MANUAL SET ADDR**]

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	CONFIGURE NMC >CONFIGURE ISD UP DWN ENT BCK	>MANUAL SET ADDR AUTO SET ADDR EDIT ADDR UP DWN ENT BCK	NETWORK ID: XXXX ADDRESS: XXXXX VID: XXXXXXXX < > ENT BCK
---	---	--	--

Enter the 5 digit **ADDRESS** of the ISD (suite number or room number) followed by **ENT**. The suite number should be entered such as: **00103** or **0206B**. Refer to **Section 5.10** if you wish to designate it as a 'Message Unit'.

Enter the 8 character **VID** number found on the back of the ISD unit, on the Barcode Label, followed by **ENT**.

Follow the procedure outlined in **Section 5.13** for **Enrolling an ISD** or see procedure below.



**NOTICE: FOR ENROLLING SINGLE ISDs, FOLLOW THESE STEPS:**

1. Go to 'EDIT ADDR' menu (see Section 5.12)
2. Press '8' and '9' simultaneously
3. Go to the 'VIEW MISSING' menu and press ENT
4. Choose the unenrolled ISD you want to enroll onto the network and press '3' ('3' = E for ENROLL)
5. The NMC will attempt to enroll this device.  
If it is successful, a message will appear 'ENROLL SUCCESSFUL!!' and the ISD will be moved to the enrolled ISDs category. If the enrollment is not successful 'ENROLL FAILED!' will appear on the display. You should then verify this units VID number. If it is correct, then verify why the NMC cannot see it on the network. (Location-unplugged? 12V Halogen present? faulty ISD? etc.).

## 5.16 Setting the System Parameters

The NMC has several system parameters that may be adjusted **globally** to suit specific needs or applications.



**Please note however that adjusting these parameters may violate ULC, UL, NFPA and/or local jurisdictional (AHJ) fire alarm codes and standards.** The global programmable parameters are:

- ISD Signal Rate
- Signal Silence Inhibit
- Trouble Notification
- Auto Alarm Silence
- Clear Trouble and Alarm Logs

### ISD Signal Rate

Changes the ISD audible alarm rate from **Temporal** [default] to **March Time** or to **Continuous**. All ISDs will alarm at the same chosen signal rate.

### Signal Silence Inhibit

Changes the Silence Inhibit feature on the NMC from disabled [default] to enable. If left disabled, the ISDs can be silenced from the NMC keypad at any time during the alarm condition. If enabled, the ISDs may be silenced by pressing the Alarm Silence button on the NMC keypad **after** the selected time has elapsed. The selectable times are: 1 min. [default], 5, 10 and 20 minutes.

(In Canada, this will NOT effect the operation of the 10 minute silencing feature on the ISDs).

### Trouble Notification

Allows for trouble conditions to be reported by the NMC on the following conditions:

- ISD Missing
- ISD Battery Trouble (Low or Missing)
- NMC Date/Time Loss

The above conditions are **factory default** to put the NMC into trouble mode if any of these conditions are present.

**ISD Missing** parameter is designed to provide a 'delay feature' for tenants to move an ISD from one location to another without causing numerous trouble conditions being reported on the NMC. The **ISD Missing** parameter, when enabled, will cause a trouble condition within 90 sec (Canadian [ULC527] default). This can be changed to an approximate range of 120, 200 (US [UL9856] default), 300 seconds or 'Never Reported'. This time is dependent on the quantity of ISDs, power line conditions, etc. If the parameter is set to any value other than the default, the ISDs will not generate a trouble condition on the NMC if any are missing from the network for less than the selected time.



**WARNING:** If the ISD Missing parameter is set to 'Miss'g Never Rptd', the NMC will NOT indicate a trouble if any ISD becomes missing from the network.

**ISD Battery Fault** parameter will cause a trouble on the NMC if a low battery or missing battery condition exists on any ISD. Note however that the ISD continuously performs a self check of the battery condition and reports it to the NMC.



**WARNING:** Disabling this feature will cause any ISD low/missing battery conditions to be ignored by the NMC.

**NMC Date/Time Loss** parameter will cause a trouble condition on the NMC at power-up if the Date/Time is lost due to a complete NMC power failure. Complete NMC power failure would occur if the NMC lost both AC and battery power.



**WARNING:** Disabling this feature will cause the NMC, during a complete loss of AC and DC power, to be clear of troubles upon power up.

**Auto Alarm Silence** parameter will automatically silence the alarms after 10 minutes if enabled. The default setting is disabled and will not automatically silence the alarms. When disabled the alarms must be manually silenced, unless the NMC is wired as a slave to the FACP using the bell reversal relay.

**Clear Logs** selection will clear either the Alarm or Trouble logs of all current entries. Once cleared, all previous entries are **permanently removed and cannot be recovered**.

## 5.17 Setting the ISD Signal Rate

Access Level 3

Use this menu selection to select the global ISD Signal Rate. Note: UL985 requires Temporal Signal Rate. Select: **[CONFIGURE]** ⇒ **[CONFIGURE NMC]** ⇒ **[SYST PARAMETERS]** ⇒ **[ISD SIGNAL RATE]**. Press **NXT** to toggle between signal rate options. Press **ENT** to accept.

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS UP DWN ENT BCK	>ISD SIGNAL RATE SIG SIL INHIBIT ..AUTO ALRM SIL UP DWN ENT BCK
---	---	---	--

The options are: Temporal (default), March Time and Continuous.

ALARM TONE TONE: TEMPORAL NXT ENT BCK
---

## 5.18 Setting the Signal Silence Inhibit

Access Level 3

Use this menu selection to set the global Signal Silence Inhibit feature. If the Signal Silence Inhibit feature is disabled, the ISDs **can** be silenced at any time from the NMC keypad during the fire alarm condition.

**If the NMC is wired to trigger an alarm via the bell output relay, the 'Signal Silence' button on the NMC will NOT function.**

Select [CONFIGURE] ⇒ [CONFIGURE NMC] ⇒ [SYST PARAMETERS] ⇒ [SIG SIL INHIBIT].

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS CONFIG RELAY UP DWN ENT BCK	ISD SIGNAL RATE >SIG SIL INHIBIT AUTO ALRM SIL UP DWN ENT BCK
---	---	---	--

Press **NXT** to toggle between options.

SIGNAL SILENCE INHIBIT: ENABLED NXT ENT BCK
--

These options are: Disabled (default), if enabled : choose 1 min, 5 min or 10 min. Press **ENT** to accept.

**Under UL985, the option should be set for 5 min as default.**

INHIBIT TIME MINUTES: 5 NXT ENT BCK
---

## 5.19 Setting the Auto Alarm Silence Feature

Access Level 3

This menu selection will change whether or not the NMC will keep the ISDs in alarm until a manual action is taken or if the NMC will automatically silence the ISD alarms after 10 minutes. The default setting is disabled meaning the NMC will keep the ISDs in alarm until action is taken. When enabled, the 10 minutes becomes the option only.

**Under UL985, the option should be set for the 10 min auto alarm silence.**

Select [CONFIGURE] ⇒ [CONFIGURE NMC] ⇒ [SYST PARAMETERS] ⇒ [AUTO ALRM SIL]. Press **NXT** to toggle between options. Press **ENT** to accept.

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS CONFIG RELAY UP DWN ENT BCK	ISD SIGNAL RATE SIG SIL INHIBIT >AUTO ALRM SIL UP DWN ENT BCK
---	---	---	--

AUTO ALRM SIL 10 MINUTES ENT BCK
--

## 5.20 Clearing the Alarm and Trouble Logs

Access Level 3

This menu selection will clear the contents of the Trouble and/or Alarm Logs. This process is irreversible in that once the log is cleared; the previous contents **CANNOT** be recovered.

Select [**CONFIGURE**] ⇒ [**CONFIGURE NMC**] ⇒ [**SYST PARAMETERS**] ⇒ [**CLEAR LOG**]. Press **NXT** to toggle between TROUBLE or ALARM. Press **ENT** to accept.

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS CONFIG RELAY UP DWN ENT BCK
---	---	---

ISD SIGNAL RATE SIG SIL INHIBIT AUTO ALRM SIL UP DWN ENT BCK
>CLEAR TRBL LOG CLEAR ALRM LOG NXT ENT BCK

## 5.21 Setting the ISD Missing Trouble Notification

Access Level 3

Use this menu selection to enable or disable the global ISD Missing Trouble Notification feature or to ‘**Bypass**’ one or more individual ISDs from the network. **Bypassing** will create a trouble condition on the NMC whereas the “**Never Reporting**” function will **not**. The Bypass feature is intended as a temporary removal of one ISD, or more, that require in-suite filters installed for 12V Halogen noise.



**WARNING:** Disabling this feature or increasing lapse times could VIOLATE UL/ULC and/or local AHJ fire codes. If the ISD Missing Trouble Notification is disabled, the system will not be able to determine if an ISD has been unplugged and/or removed.

Select [**CONFIGURE**] ⇒ [**CONFIGURE NMC**] ⇒ [**SYST PARAMETERS**] ⇒ [**TROUBLES**] ⇒ [**MISSING DEVICES**].

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS CONFIG RELAY UP DWN ENT BCK
ISD SIGNAL RATE SIG SIL INHIBIT AUTO ALRM SIL UP DWN ENT BCK		
CLEAR LOGS >TROUBLES UP DWN ENT BCK		

Lapse time can be set to 90 sec (Canadian default), 120, 200 (US default), 300 seconds, or 'Never Reported'. These times are approximate only dependent on ISD quantities on network, power line conditions, etc.

If you choose any of the lapse time readings, other than the default, '**NXT**' will scroll you through the 120, 200 or 300 second choices. Press '**ENT**' to accept the amount.

When '**MISSING DEVICES**' is selected from the trouble menu, if you choose to select '**NEVER REPORTED**' and you choose '**ENT**' to proceed, the next menu will be displayed as:

>MISSING DEVICES LOW/MISSING BAT ISD AC LOSS UP DWN ENT BCK	DATE/TIME LOSS UP DWN ENT BCK
--	----------------------------------

If you select '**BYPASS ISD**', you will be shown a list of enrolled ISDs:

>BYPASS ISD MISS'G NEVER RPTD UP DWN ENT BCK	RM209 ENABLED >RM300 ENABLED RM301 ENABLED UP DWN CHG BCK
--	--

If you select '**CHG**', this will invert the ISD Address selection from '**Enabled**' to '**BYPASSED**' or visa-versa. Here '**BYPASSED**' means that the 'Missing ISD Trouble' notification on the NMC will be disabled for this ISD, or multiple ISDs, chosen. Bypassing will create a trouble condition on the NMC until the bypassed ISD devices are enabled once more.

RM209 ENABLED >RM300 BYPASSED RM301 ENABLED UP DWN CHG BCK NXT ENT BCK
--

If '**MISS'G NEVER RPTD**' is chosen, then a WARNING will appear stating that this action contravenes UL, ULC and AHJ regulations.

BYPASS ISD >MISS'G NEVER RPTD UP DWN ENT BCK	WARNING: THIS MAY CONTRAENE UL, ULC AND AHJ REGS.
--	--

If '**CONT**' is selected, then a '**COMPLETE!**' notification will appear.



**WARNING: The NMC will NOT show a trouble condition when this option is selected.**

## 5.22 Setting the ISD Low/Missing Battery Trouble Notification

Access Level 3

Use this menu selection to enable or disable the global ISD Low/Missing Battery Notification feature.



**WARNING:** If the ISD Low/Missing Battery Trouble Notification is disabled, the system will not be able to determine if an ISD has low or missing batteries.

Select: [CONFIGURE] ⇒ [CONFIGURE NMC] ⇒ [SYST PARAMETERS] ⇒ [TROUBLES] ⇒ [LOW/MISSING BAT].

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS CONFIG RELAY UP DWN ENT BCK
ISD SIGNAL RATE SIG SIL INHIBIT AUTO ALRM SIL UP DWN ENT BCK	CLEAR LOGS >TROUBLES UP DWN ENT BCK	

Press **NXT** to toggle between options. Press **ENT** to accept option.

## 5.23 Setting the NMC Date/Time Loss Trouble Notification

Access Level 3

Use this menu selection to enable or disable the NMC Date/Time Loss notification feature.



**WARNING:** By disabling this feature, the system will not be able to provide notification of a complete system power failure when power is restored. All future events will be stamped with wrong date and time for history logging!

Select: [CONFIGURE] ⇒ [CONFIGURE NMC] ⇒ [SYST PARAMETERS] ⇒ [TROUBLES] ⇒ [DATE/TIME LOSS]

ADMINISTRATION TESTS >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK >SYST PARAMETERS CONFIG RELAY UP DWN ENT BCK
ISD SIGNAL RATE SIG SIL INHIBIT AUTO ALRM SIL UP DWN ENT BCK		
CLEAR LOGS >TROUBLES UP DWN ENT BCK	LOW/MISSING BAT ISD AC LOSS >DATE/TIME LOSS UP DWN ENT BCK	

Press **NXT** to toggle between options. Press **ENT** to accept option.



DATE/TIME LOSS TROUBLE: ENABLED
NXT      ENT   BCK

## 5.24 Setting the NMC General Alarm Relay Operation

Access Level 3

Use this menu selection to enable [default] or disable the General Alarm Relay Operation.

If the General Alarm Relay Operation is disabled, the General Alarm relay will **NOT** activate during an alarm condition.

Select [**CONFIGURE**] ⇒ [**CONFIGURE NMC**] ⇒ [**CONFIG RELAYS**]

ADMINISTRATION TEST >CONFIGURE UP DWN ENT BCK	>CONFIGURE NMC CONFIGURE ISD UP DWN ENT BCK	NMC NETWORK SYST PARAMETERS >CONFIG RELAY UP DWN ENT BCK	ALARM RELAY: ENABLED NXT      ENT   BCK
--	---	---	---

Press **NXT** to toggle between options (Enabled/Disabled). Press **ENT** to accept option.

## 5.25 NMC Tests

The Relay Test allows for testing of the Trouble and Alarm Relays. When selected to ON, both relays will REVERSE STATUS. When selected to OFF, the relays will return to NORMAL stat.

## 5.26 Testing the NMC Alarm and Trouble Relays

Access Level 2



Use this menu selection to test the NMC Alarm and Trouble Relays. ON will energize both relays and OFF will de-energize both relays.

Select: [**TEST**] ⇒ [**NMC TEST**] ⇒ [**TEST RELAYS**].

DISPLAY VERSION ADMIN >TESTS UP DWN ENT BCK	>NMC TESTS ISD TESTS UP DWN ENT BCK	TEST LAMP/PIEZO >TEST RELAYS UP DWN ENT BCK	RELAY TEST RELAYS... ON ON OFF      BCK
--	---	---	---

Press **ON** to energize and **OFF** to de-energize.

## 5.27 Testing the NMC LEDs, LCD Display and Piezo (Lamp Test)

To test the NMC LEDs, LCD display and Piezo, press  and  simultaneously on the NMC Keypad. All LEDs will turn on, each line of the LCD display will be black and the piezo will be on.

### 5.28 ISD Sound Tests

Once installed onto the network, the ISDs can be tested either individually or globally. The Piezo Test allows for a 'Pass/Fail' report whereas the 'Drill Test' does **NOT**.

**PIEZO TEST** allows for automatic testing of the ISD's piezo. This test will turn on the ISD's piezo for a brief moment and monitor the sound output. This test can be performed without the presence of a technician at the ISD.



**NOTE:** This test monitors the sound output from within the ISD. It cannot determine if there is any obstruction, such as tape, over the ISD grill or around the ISD. During the test, the piezo will turn on for a fraction of a second then turn off if the sound level is sufficient. If the sound level is not sufficient, the piezo may remain on for up to 5 seconds. A report can be obtained from the NMC via the FIRE-LINKLOAD program showing the results of this test for archival purposes.

**DRILL TEST** allows for testing of the ISD in an alarm mode **without the test reporting feature**. The Drill Test will alarm the ISDs at the alarm sounding rate that they are currently set to (default being Temporal). Both the **PIEZO TEST** and **DRILL TEST** can be performed globally or individually by ISD suite number.

### 5.29 Global ISD Piezo Test

Access Level 1

Use this menu selection to test the piezo operation of all ISDs on the network at once.

Select: [TESTS] ⇒ [ISD TESTS] ⇒ [TEST ALL ISDS] ⇒ [TEST ALL PIEZOS].

DISPLAY VERSION ADMINISTRATION >TESTS UP DWN ENT BCK	NMC TESTS >ISD TESTS UP DWN ENT BCK	TEST SINGLE ISD >TEST ALL ISDS RESET ALL ISDS UP DWN ENT BCK	>TEST ALL PIEZOS DRILL TEST UP DWN ENT BCK
---	---	---	--

Press **CONT** to start test.

PIEZO TEST  
  
 CONT BCK

When the test has concluded, a 'Passed/Failed' message will appear. If any ISD's fail, a list of failed ISD units, by suite number, will appear. These failed units should be investigated as soon as possible. The test switch should be pressed to test the piezo sounding. If the unit does not sound, it should be replaced immediately with another ISD unit after programming and enrolling it. The failed unit will have to be removed from the network as well.

A hard copy report can be generated by the NMC via the FIRELINKLOAD database program for reporting/history purposes.

### 5.30 Global ISD Drill Test

Access Level 1

Use this menu selection to perform an alarm drill on all the ISDs on network at once. No 'Passed/Failed' report is available with this method of sounding.

Select: **[TESTS]** ⇒ **[ISD TESTS]** ⇒ **[TEST ALL ISDS]** ⇒ **[DRILL TEST]**.

DISPLAY VERSION ADMINISTRATION >TESTS UP DWN ENT BCK	NMC TESTS >ISD TESTS UP DWN ENT BCK	TEST SINGLE ISD >TEST ALL ISDS RESET ALL ISDS UP DWN ENT BCK	TEST ALL PIEZOS >DRILL TEST UP DWN ENT BCK
---	---	---	--

Press **ON** to put the ISDs into alarm. Press **OFF** to turn them off.

DRILL TEST DRILL: ON ON OFF BCK
---------------------------------------



NOTE: Since this test is similar to a normal alarm function, the ISD's may stay in alarm for as long as 15 seconds after the test is started.

### 5.31 Single ISD Piezo Test

Access Level 1

Use this menu selection to test the piezo operation of a single ISD.

Select: **[TESTS]** ⇒ **[ISD TESTS]** ⇒ **[TEST SINGLE ISD]** ⇒ **[TEST PIEZO]** **[PIEZO]**. Use the **UP DOWN** keys to select the desired unit.

DISPLAY VERSION ADMINISTRATION >TESTS UP DWN ENT BCK	NMC TESTS >ISD TESTS UP DWN ENT BCK	>TEST SINGLE ISD TEST ALL ISDS RESET ALL ISDS UP DWN ENT BCK	>TEST PIEZO DRILL TEST UP DWN ENT BCK
---	---	---	---

Press **ENT** to start test

PIEZO TEST: USER ID: UP DWN ENT BCK	ISD XXXXX TEST TESTING PLEASE WAIT...
---	---

When the test has concluded, a 'Passed/Failed' message will appear. Any ISD that shows a 'Fail' should be investigated immediately and replaced if necessary.

## 5.32 Single ISD Drill Test Access Level 1

Use this menu selection to test the piezo operation of a single ISD. No 'Passed/Failed' report is available with this method of sounding.

Select: **[TESTS]** ⇒ **[ISD TESTS]** ⇒ **[SINGLE ISD]** ⇒ **[DRILL TEST]**. Use the **UP DOWN** keys to select desired unit.

DISPLAY VERSION ADMINISTRATION >TESTS UP DWN ENT BCK	NMC TESTS >ISD TESTS UP DWN ENT BCK	>TEST SINGLE ISD TEST ALL ISDS RESET ALL ISDS UP DWN ENT BCK	TEST PIEZO >DRILL TEST UP DWN ENT BCK
---	---	---	---

Press **ON** to start test, **OFF** to stop.

ISD XXXXX TEST DRILL: ON ON OFF BCK	DRILL TEST: USER ID: UP DWN ENT BCK
---	---

## 5.33 Reset All ISDs Access Level 3

This 'Reset' function is used to reset ISD alarms after an ISD unit has been unplugged from an outlet. This may occur when doing a demo of a system or when an ISD is being used as a Beacon. If the ISD is unplugged during a reset broadcast and then plugged back into an outlet, the ISD will remain in alarm unless another reset signal broadcast is sent out.

Plug in ISD unit. Select **[Tests]** » **[Reset All ISDS]** Press '**ENT**' to send reset signal.

DISPLAY VERSION ADMINISTRATION >TESTS UP DWN ENT BCK	NMC TESTS ISD TESTS >RESET ALL ISDS UP DWN ENT BCK	RESET SIGNAL SENT
---	---	-------------------

## 5.34 CONNECT to NMC (From Laptop) Access Level 3.

This selection is used to connect the NMC to a laptop to download the FIRE-LINKload Windows® based job file data. A **DB9** serial port cable is needed to connect the NMC to a Laptop computer, otherwise a USB to serial connector will have to be used.

Select '**CONNECT**' in the FIRE-LINKLOAD program. The **NMC** LCD will show the following TEMPORARY message:

CONNECTION ESTABLISHED
---------------------------

When '**GET JOB**' is pressed, the NMC will display 'GETTING ISD LIST', then 'GETTING SYSTEM PARAMETERS', then 'GETTING EVENT LOG', then 'GETTING DATA COMPLETE'.

When '**SEND JOB**' is pressed, the NMC will display 'SENDING ISD LIST', then 'SENDING SYSTEM PARAMETERS', then 'SEND DATA COMPLETE' or 'SEND DATA FAILED'.

As long as the **NMC** is NOT in alarm, then the laptop can be used to initiate the transfer of data. The **NMC** will go into trouble mode but the piezo will not sound.

See FIRE-LINKload Help document for further available functions from this linked program.



**NOTE:** If the JOB is not new, then it is recommended that the '**GET JOB**' upload be performed before adding any new data before initiating the '**SEND JOB**' download.

## 6.0 FINAL TEST AND VERIFICATION

Once all the ISD units are installed in the suites and each unit has the Green LED ON, the NMC should show “**System Normal**” on the LCD display. As a final verification of the entire networked system, the following can be performed.

### 6.1 Zone Testing

- The NMC has two (2) “Class B”, 2-wire **Alarm Initiating Circuits**, however, a 12VDC power limited resettable auxiliary power source (Terminal block J141 on main control board) has been provided for connecting 4-wire smoke detectors onto either circuit (not both).
- A System Sensor EOL Supervision Relay #77-716B should be installed at the end of the power loop so that the 12V power line circuit is monitored for opens and shorts. Refer to Section 2.5 Alarm Zone Wiring.
- Each of the two alarm initiating circuits are supervised by a 3.9K, 1/4W +5%, EOLR , Model MP-100 by Mircom Technologies and are monitored for shorts, opens and ground faults. Zone alarms have priority over all other annunciation of trouble conditions. In Canada, each wired zone should be installed per ULC S524 and verified per ULC S537, Standards for Fire Alarm Systems.
- Whether the NMC has been installed in Master or Slave mode, both the alarm zone wiring and the trouble monitoring wiring should be tested for correct operation. In the case of alarm wiring, the FACP should have an alarm condition initiated to insure that the NMC is put into alarm condition via the FACP dry alarm contact or through the sounding of the FACP signal circuit/NMC Bell Output Relay. The NMC should then be put into trouble condition to insure that the FACP “NMC” zone goes into trouble mode (Open condition).

### 6.2 ISD Testing

Once all the ISD’s have been enrolled in the network (refer to Section 5.13) and the NMC has been installed either in the Master or Slave mode (refer to Section 2.0), testing can commence.

With the connection of a Laptop and the FIRE-LINKLOAD program (or via the NMC Keypad), a COMPARE program can be run to insure that all the ISD units are on the network to those downloaded into the FIRE-LINK LOAD program.

- Each ISD unit can be tested for piezo sounding directly from the NMC by one person.
- ISD’s can be tested individually or by all units at once. This selection is made in the NMC menu program or through the FIRE-LINK Load program when linked to the NMC. Based on an average ambient sound level, the ISD is designed to detect a “spike” in each suite’s noise level and report a true or false condition to the NMC. A report of this test can be printed later for verification reporting and historical logging purposes. This test, however, does not ensure that someone has not covered up the piezo baffle with tape. All ISD units should be inspected at least once per year by a qualified fire alarm servicing company.

A verification of the entire FIRE-LINK installation should be performed per ULC-S537-04 (Canada) and a verification/commissioning report issued to the local AHJ.

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## 7.0 MAINTENANCE

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### 7.1 Monthly Testing

It is recommended that the FIRE-LINK system be inspected at least weekly and/or after every prolonged power outage to ensure that any ISD units are not reporting 'low battery' trouble. Every month, the full system should be tested by the resident manager or installing company to ensure that all ISD units are operational and functioning properly. Each ISD can be tested for piezo sounding directly from the NMC panel. This test can be conducted by one person without having to gain entry into each suite. The test program (level 1) can be accessed via the NMC keypad. The ISDs can be tested individually or by all units. The NMC will then record the piezo test for each suite as a 'Pass' or 'Fail' scenario. Any 'failed' reports are non-sounding units which should be investigated and

corrected  immediately.


### 7.2 NMC Battery Replacement

The recommended battery replacement for the NMC is one **12V – 12.0AH SLA** rechargeable type (Discovery brand). This battery has been properly sized to the current demands of the Rx and Tx functions during 24 standby operations.

### 7.3 ISD Battery Replacement

Refer to Section 1.12 for proper battery type and part number

The ISD has a rechargeable battery pack that should provide adequate service for several years. However, should the battery pack require replacement:

1. Remove the four assembly screws from the rear housing. The rear housing forms a tight fit around the AC blades and ground pin.
2. **CAREFULLY and SLOWLY** remove the rear housing from the unit by sliding the rear housing off of the AC blades and ground pin. It may help to hold the rear housing in one hand and push on the AC blades and ground pin with the other.
3. The battery pack is readily accessible with the rear housing removed. Disconnect the battery pack lead connector and reconnect a new pack.
4. The battery pack is nested in the rear housing by bosses on the inside of the rear housing using double sided tape. Ensure that the battery pack is lying flat within the housing and that the battery wires are free from obstruction and are not going to be pinched between the housings during reassembly.
5. Reassemble the unit.  **Do not over tighten the assembly screws** as this may cause the plastic to strip out.

## 8.0 EVACUATION PLAN (Household - per NFPA)

- Pull together everyone in your household and make a plan. Walk through your home and inspect all possible exits and escape routes. Households with children should consider drawing a floor plan of your home, marking two ways out of each room, including windows and doors. Also, mark the location of each smoke alarm. For easy planning, download NFPA's [escape planning grid](#) (PDF, 73 KB). This is a great way to get children involved in fire safety in a non-threatening way.
- Make sure that you have at least one smoke alarm on every level of your home.



- Everyone in the household must understand the escape plan. When you walk through your plan, check to make sure the escape routes are clear and doors and windows can be opened easily.
- Choose an outside meeting place (i.e. neighbor's house, a light post, mailbox, or stop sign) a safe distance in front of your home where everyone can meet after they've escaped. Make sure to mark the location of the meeting place on your escape plan.
- Go outside to see if your street number is clearly visible from the road. If not, paint it on the curb or install house numbers to ensure that responding emergency personnel can find your home.
- Have everyone memorize the emergency phone number of the fire department. That way any member of the household can call from a neighbor's home or a cellular phone once safely outside.
- If there are infants, older adults or family members with mobility limitations make sure that someone is assigned to assist them in the fire drill and in the event of an emergency. Assign a backup person too, in case the designee is not home during the emergency.
- If windows or doors in your home have security bars, make sure that the bars have quick-release mechanisms inside so that they can be opened immediately in an emergency. Quick-release mechanisms won't compromise your security - but they will increase your chances of safely escaping a home fire.
- Tell guests or visitors to your home about your family's fire escape plan. When staying overnight at other people's homes, ask about their escape plan. If they don't have a plan in place, offer to help them make one. This is especially important when children are permitted to attend "sleepovers" at friends' homes.
- Be fully prepared for a real fire: when a smoke alarm sounds, get out immediately. Residents of high-rise and apartment buildings may be safer "defending in place."
- Once you're out, stay out! Under no circumstances should you ever go back into a burning building. If someone is missing, inform the fire department dispatcher when you call. Firefighters have the skills and equipment to perform rescues.

### Putting your plan to the test

- Practice your home fire escape plan twice a year, making the drill as realistic as possible.
- Allow children to master fire escape planning and practice before holding a fire drill at night when they are sleeping. The objective is to practice, not to frighten, so telling children there will be a drill before they go to bed can be as effective as a surprise drill.



- It's important to determine during the drill whether children and others can readily waken to the sound of the smoke alarm. If they fail to awaken, make sure that someone is assigned to wake them up as part of the drill and in a real emergency situation.
- If your home has two floors, every family member (including children) must be able to escape from the second floor rooms. Escape ladders can be placed in or near windows to provide an additional escape route. Review the manufacturer's instructions carefully so you'll be able to use a safety ladder in an emergency. Practice setting up the ladder from a first floor window to make sure you can do it correctly and quickly. Children should only practice with a grown-up, and only from a first-story window. Store the ladder near the window, in an easily accessible location. You don't want to have to search for it during a fire.
- Always choose the escape route that is safest – the one with the least amount of smoke and heat – but be prepared to escape through toxic smoke if necessary. When you do your fire drill, everyone in the family should practice crawling low on their hands and knees, one to two feet above the ground. By keeping your head low, you'll be able to breathe the "good" air that's closer to the floor.
- It's important to practice crawling on your hands and knees, not your bellies, as some poisons produced by smoke are heavier than air and settle to the floor.
- Closing doors on your way out slows the spread of fire, giving you more time to safely escape.
- In some cases, smoke or fire may prevent you from exiting your home or apartment building. To prepare for an emergency like this, practice "sealing yourself in for safety" as part of your home fire escape plan. Close all doors between you and the fire. Use duct tape or towels to seal the door cracks and cover air vents to keep smoke from coming in. If possible, open your windows at the top and bottom so fresh air can get in.

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## 9.0 TROUBLESHOOTING GUIDE

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The following steps should be taken if an ISD **cannot** be enrolled or located on the network:

- Ensure that the Phase Coupler breakers are all turned 'ON'.
- The NMC will report any and all missing ISDs by suite number (Address). Remember: 'MISSING' devices are not found on the network. 'UNKNOWN' devices usually have incorrect VID numbers in the NMC list which were either entered manually or via the FIRE-LINKLOAD download program. Missing devices must be corrected either by solving the problem, replacement of the ISD or deletion from NMC list. Unknown devices will require correction of the VID number or deletion from list.

### **For Problem Solving:**

- If this is a suite with a 12V halogen light and it was turned 'ON' during ISD placement, then go to suite and remove the ISD. Go to the NMC and plug this ISD into a nearby outlet. Try enrolling this unit again. (go to 'EDIT ADDR' to enroll single ISD). If enrolment takes place, unplug the ISD and go back to the suite and try various outlets until 'Flickering' of the ISD's green LED takes place (usually within 90 seconds). Enrolment problem has been solved. Repeat for any other ISD missing devices. If flickering still does not occur in all the outlets tried in this suite, then....
- A wire-in noise filter will have to be installed at the power source of the 12V halogen. This will either be at the switch or in the base of the lighting unit. Some halogens are plug-in units. Use the plug-in type filter for these. Another solution would be to replace the halogen fixture with a more power efficient unit. Suites with multiple 12V halogens will require multiple filtering. Communications will definitely be effected in this suite and possibly in neighboring suites as well. Once filters are installed, try enrolling the ISD again from the NMC. If enrolling still fails.....
- Possibly check suite for an old TV and/or Computer. Old units have switching power supplies that generate a lot of noise onto the power line. Try moving the ISD to another outlet on another phase. A plug-in filter is available for this fix if required. Try enrolling again. If the NMC still can't enroll the ISD.....
- As a last resort, try a temporary replacement of an ISD Unit from another suite. If the same result occurs, then a thorough analysis of the suite for other noise generating devices will be required.
- If the ISD replacement unit functions properly, remove the non-functioning unit from the NMC network list and program a new unit in.
- **There will always be a root cause why an ISD device (or multiple devices) is not enrolling on the first pass.**  
Remember - Power line conditions will vary from building to building, regardless of the number of suites!
- Please keep in mind that the enrolment process usually takes about 2 minutes for a typical 40 unit install. This time will go up dramatically for a 120 unit install to 10 minutes. So, give the NMC sufficient time. The LCD screen did NOT freeze up!!

## 10.0 APPENDIX A

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### Error Messages

**Sys Error: 1** – Indicates a problem with the Network Controller on the NMC main board  
**Sys Error: 2** – Indicates a problem with the system EEPROM on the NMC Main Controller  
**Sys Error: 3** – Indicates a problem with Detection Zone 1 on the NMC Main Controller  
**Sys Error: 4** – Indicates a problem with Detection Zone 2 on the NMC Main Controller

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## 11.0 WARRANTY AND GOODS RETURN POLICY

### Warning to installers:

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this 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.

### System Failures:

This system has been carefully designed to be as effective as possible. There are circumstances, such as fire or other types of emergencies where it may not provide signaling capabilities and/or protection. Alarm systems and accessories to these systems may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some reasons for system failure include:

#### -Inadequate Installation

A Fire Alarm System and/or Accessory to must be installed in accordance with all applicable codes and standards in order to provide adequate protection and signaling capabilities. An inspection and approval of the initial installation, or, after any changes to the system, must be conducted by the Local Authority Having Jurisdiction. Such inspections ensure installation has been carried out properly. In Canada, a second party Verification according to ULC-S537-99 – 'Standard for the Verification of Fire Alarm Systems' must be performed prior to commissioning.

#### -Power Failure and Replaceable Batteries

Control units, smoke detectors and the ISD-1000 In-suite Signaling Devices require an adequate power supply for proper operation. If the system or any device connected to the system operates from standby batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be full or close to fully charged.

In the case of the ISD-1000 rechargeable NiMH batteries, expected battery life is a function of the environmental fluctuations which may damage electronic equipment such as a fire alarm control or monitoring unit. After a power interruption has occurred, immediately conduct a complete system test to insure that the system operates as intended. Even though these batteries should last several years, 'low battery warnings' may not be evident as yet, and may warrant battery replacement. The low battery monitoring device may also have failed.

#### -System Users

It is important that all system users be trained in the correct operation of the alarm/signaling system and that they know how to respond when the system indicates either an alarm or trouble condition. Those ISD units that are programmed to be 'Message Units' for certain individuals have to be trained to respond to these alerts that there is a 'trouble condition' on the Network and the fault(s) must be corrected in a timely manner.

#### -Automatic Alarm Initiating Devices

Smoke detectors, heat detectors and other alarm initiating devices that are part of this system may not properly detect a fire condition or signal the control panel to alert occupants of a fire condition for a number of reasons, such as :

- the smoke detectors and/or heat detectors may have been improperly installed or positioned ;
- smoke or heat may not be able to reach the alarm initiating device or
- the fire is on another level of the building.

Every fire is different in the amount and rate at which smoke and heat are generated. Smoke detectors can not sense all types of fires equally well. Even if the smoke or heat detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death. In the case of the NMC-100 acting as an 'Accessory' to the Fire Alarm Panel, the

NMC is dependent on the fire alarm system control panel to function properly and to signal the NMC to initiate an alarm sequence for the ISD-1000 to signal the occupants.

**-Alarm Notification Appliances**

The In-suite Signaling Devices (ISD-1000's) are designed to be a supplemental signaling device to augment and NOT replace the existing signaling capabilities of the primary Fire Alarm System in the building. Even though the ISDs will be verified, at the on-set, for maximum signaling performance, they are portable and can be installed in the suite living areas during daytime hours. It is up to the occupant to ensure that the ISD is plugged into a wall outlet that gives the highest decibel level rating to that individual. The ISD devices are supervised for placement in the Network and have a programmable delay feature. This delay feature permits relocation without causing a trouble condition on the NMC control unit. However, this supervisory feature may fail and communications will be lost. It is up to the Occupant to insure that the ISD unit is plugged into the AC wall outlet and has not been unplugged and that the AC circuit breaker that the ISD unit is plugged into is 'ON' and has not been flipped to the 'OFF' position.

**-Insufficient Time**

There may be circumstances when the 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.

**-Component Failure**

Although every effort has been made to make this signaling system as reliable as possible, the system may fail to function as intended due to the failure of a component.

**-Inadequate Testing**

Most problems that would prevent an alarm system from operating as intended can be discovered by regular testing (monthly and annually) and routine maintenance. The complete system should be tested as required by national standards and the Local Authority Having Jurisdiction and 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 total system.

**-Security and Insurance**

Regardless of its capabilities, an alarm system is NOT a substitute for property or life insurance. An alarm system also is NOT a substitute for property owners, renters or other occupants to act prudently to prevent or minimize the harmful Effects of an emergency situation.



**IMPORTANT NOTE: END-USERS OF THE SYSTEM MUST TAKE CARE TO ENSURE THAT THE SYSTEM, BATTERIES, TELEPHONE LINES, ETC. ARE TESTED AND EXAMINED ON A REGULAR BASIS TO ENSURE THE MINIMIZATION OF SYSTEM FAILURE.**

**LIMITED WARRANTY AND RETURNED GOODS AUTHORIZATIONS**

Mircom Technologies Ltd. warrants the original purchaser for a period of two (2) years from the date of purchase, that the product shall be free of defects in materials and workmanship under normal use. During the warranty

period, Mircom Technologies Ltd. shall, at its option, repair or replace any defective product upon return of the product to its factory or to its licensed Distributors, at no charge for labor and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original owner must promptly notify Mircom Technologies Ltd. that there is a defect in material and/or workmanship, such written notice to be received in all events prior to expiration of the warranty period. Warranties are the same for Canada and the U.S.

#### International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Mircom Technologies Ltd. shall not be responsible for any customs fees, taxes, or VAT that may be due.

#### Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Mircom Technologies Ltd. such as excessive voltage, mechanical shock or water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Mircom Technologies Ltd.);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

#### Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Mircom Technologies Ltd. must first obtain an authorization number. Mircom Technologies Ltd. will not accept any shipment whatsoever for which prior authorization has not been obtained. NOTE: Unless specific pre-authorization in writing is obtained from Mircom management, no credits will be issued for custom fabricated products or parts or for complete fire alarm system. Mircom will at its sole option, repair or replace parts under warranty. Advance replacements for such items must be purchased.

Note: Mircom Technologies Ltd.'s liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty.

#### Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Mircom Technologies Ltd. neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

#### Out of Warranty Repairs

Mircom Technologies Ltd. will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Mircom Technologies Ltd. must first obtain an authorization number. Mircom Technologies Ltd. will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Mircom Technologies Ltd. determines to be repairable will be repaired and returned. A set fee which Mircom Technologies Ltd. has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Mircom Technologies Ltd. determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

**WARNING:** Mircom Technologies Ltd. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

**NOTE:** Under no circumstances shall Mircom Technologies Ltd. be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

**MIRCOM MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS GOODS DELIVERED, NOR IS THERE ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT FOR THE WARRANTY CONTAINED HEREIN.**

