FX-350 Series

Analog/Addressable Fire Alarm Panel

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System Configuration

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in CAN/ULCS527, Standard for Control Units for Fire Alarm Systems, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in CAN/ ULCS527? (Y/N)	Possible settings\methods	Settings permitted in CAN/ULCS527
Auto signal silence timer	Y	Disabled or 5, 10, 15, 20, or 30 minutes	All

Table 1 Settings permitted in UL864

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in UL864, Control Units and Accessories for Fire Alarm Systems, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in UL864? (Y/N)	Possible settings\methods	Settings permitted in UL864
AC power fail delay	Y	0, 1, 2, 3 hours	1, 2, 3 hours
Auto signal silence timer	N	Disabled or 5, 10, 15, 20, or 30 minutes	Disabled

The FX-350/351/353 Series Fire Alarm Control panel is programmed via the front panel keys and LCD display. The configuration is divided into various sections:

- Panel configuration
- Auto configuration
- Default configuration
- Dialer configuration
- Time configuration
- After Hours configuration

Panel Configuration

Panel configuration is divided into various subsections. This includes system wide configurable features, device configuration for addressable and conventional devices, set correlations between input and output circuits, grouping of circuits and associate LED indicators and configure the remote switches.

Configurable Features

The basic system operation may be modified by enabling or disabling certain system wide operations as shown in the following table. When the system is first initialized these features are set to their defaults.

FEATURE	OPTIONS	DEFAULT	NOTES
Manual Signal Silence Switch when enabled allows manual operation of the manual signal silence button.	Enable/disable	enabled	

FEATURE	OPTIONS	DEFAULT	NOTES
Fire Drill Switch when enable allows operation of the fire drill button.	Enable/disable	enabled	
Waterflow Retard Operation If disabled, all the initiating circuits configured as waterflow act as non-verified alarms. If enabled, retard operation is performed for initiating circuits configured as waterflow.	Enable/disable	disabled	
Auxiliary Disconnect, disconnects alarm and supervisory relay If enabled the auxiliary disconnect operation, disconnects alarm and supervisory relays. If disabled the auxiliary disconnect operation has no affect on the alarm and supervisory relays.	Enable/disable	disabled	
Signal Silence Inhibit Timer Select the timer value for the signal silence inhibit timer.	Disable, 10sec, 20sec, 30sec, 1min	disabled	
Auto Signal Silence Timer Select timer value for the auto signal silence timer. For UL installations, disable the auto signal silence timer.	Disabled or 5, 10, 15, 20, or 30 minutes	disabled	1
Number of Annunciators Select number of remote annunciators. The annunciators include the RA-1000 series and the RAM-300LCD. There can be any combination of the annunciators.	None, 1 - 7	none	
Alarm Transmit Silence This feature allows the alarm and auxiliary alarm relay to reset on "SIGNAL SILENCE" rather than the "RESET" button, if enabled.	Enable/disable	disabled	
Power Fail Timer This feature allows a programmed delay before the AC fail trouble is transmitted by the dialer.	0, 1, 2, 3 hours	none	
Common Supervisory Relay This feature is used to make the common Supervisory Relay act as a common alarm relay if enabled.	Enable/disable	disabled	
Signal Isolator This feature configures the loop #0 (which includes powered output circuits on the main board) to have isolators connected.	Enable/disable	disabled	

FEATURE	OPTIONS	DEFAULT	NOTES
Strobe Types Select the strobe manufacturer for synchronous strobes. Synchronous strobes are driven by following a different ON/OFF pattern depending on the manufacturer's specification. Once one manufacturer of strobes is selected, that is the only type to be used in the system. Normal means the strobes are not synchronized and when the circuit gets active it is turned ON steady. This feature applies to loop #0 powered output circuits, configured as strobes only.	Normal, Gentex, System Sensor, Mircom, Faraday, Wheelock	Normal (No sync)	
Evacuation Code Select the evacuation code for the 2nd stage in a two stage system and for the 1st stage in a single stage system. The alert rate is always set at 20 bpm regardless of this configuration.	Continuous, March time, Temporal, California	Temporal	
Property and Building Safety (Monitor) Alert Alert sounds for property and building safety input activation.	Enable/disable	disabled	2
Device LED Flashing This feature allows the LED on the addressable sensors to flash momentarily, while polling, if enabled. The input and output addressable module LED always flashes, while polling, regardless of whether this feature is enabled or disabled.	Enable/disable	disabled	
Class A Loop This feature configures all the addressable loops as Class A, if enabled. By default all the addressable loops are configured as Class B.	Enable/disable	disabled (class B)	
Auto After Hours This feature allows the daytime/nighttime mode to be set automatically if enabled.	Enable/disable	disabled	
Two Stage Operation When enabled two stage operation is selected otherwise the system operates in single stage mode. This selection also sets the Auto General Timer to 5 minutes. The user should always either disable the auto signal silence timer or set it to be greater than the Auto General Alarm Timer. For UL installations, disable the auto signal silence timer.	Enable/disable	Disabled (Single Stage Operation)	

FEATURE	OPTIONS	DEFAULT	NOTES
Positive Alarm Sequence (PAS) This selection is mutually exclusive with Two Stage Operation, i.e. you can have one or the other and not both. Any devices deemed PAS will activate the common alarm LED, the individual LED (if programmed), flash the Automatic Alarm Signal Cancel (Acknowledge) LED and sound the alarm buzzer at the panel. The LCD display will also declare the PAS alarm. There will be no alarm signalling initially. All evacuation signal and off-premises signalling will be activated if the Automatic Alarm Signal Cancel button is not pressed within 15 seconds of the PAS alarm and the RESET button is not pressed within 180 seconds from the acknowledge, or if a second device goes into alarm.	Enable/disable	Disabled	
General Alarm Timer This feature sets the value for the general alarm timer	Disabled, 5, 10, 15, 20, 30 minutes	Disabled	3
Common Alarm Relay Operation This feature sets the operation of the common alarm for two stage system.	Both stages or second stage only	Second stage	
Display Adders (For FX-351/353 Models Only) This feature selects the number of RAX-332 display adders present in the system. By default one is always present.	1,2	1	
Agency Selection This feature selects the agency having jurisdiction for the panel. The sensitivity range of the ion and photo sensors depends on the agency selection.	ULC, ULI	ULC	

i **Notes:** 1. For UL installations, disable the auto signal silence timer.

2. The auto signal silence timer cannot be set shorter than the auto GA or signal silence inhibit timers.

3. The alert buzzer always sounds for property and building safety inputs configured to signals.

Device And Circuit Configuration

The device and circuit configuration involves the following

- Setting up the device type and address
- Setting the sensitivity of the sensors for both daytime and nighttime operation
- Set the device as silenceable or non-silenceable
- Second stage or Positive Alarm Sequence
- Delay Timer for outputs (can be used for Elevator Recall)
- Class A selection for outputs.
- Create a label to recognize the device on the shared display when the device is active or in trouble

The table below shows the supported devices and process types:

DEVICE / ADDER TYPE	OPTIONS
SENSORS: analog detector (ion, photo, multi-sensor and thermal)	Verified alarm
	Non-verified alarm
	Latching supervisory
	Non-latching supervisory
	Trouble
	Property and building safety
INPUT MODULES: contact input module and mini contact input module	Non-verified alarm inputs
	Latching supervisory
	Non-latching supervisory
	Trouble
	Property and building safety
	Waterflow
	Remote switch
OUTPUT MODULES: relay output module, supervised output module and conventional powered output circuit	signals
	strobes
	relay outputs

Only the sensors have sensitivity settings and in some cases depend on the setting for drift compensation and the agency (UL/ULC) selection for which the panel is set up. Drift Compensation is always enabled. The Drift Compensation feature and algorithm is only applicable for the ion and photo sensor. The multi-sensor has drift compensation built into the device and the algorithm is not applicable.

The thermal sensor is not affected by the agency (UL/ULC) and/or the drift compensation setting and can be set to full range.

The devices can be configured to silenceable or non-silenceable and when configured as silenceable the device can be silenced by activation of the signal silence button.

A "label" is used to identify the device on the shared LCD display and shows a meaningful message when the device is active or in trouble, the maximum characters allowed for the label is 20. A "label" can be assigned to all input and output addressable devices and the four on-board NAC circuits.

I/O Correlations

All types of input circuits except remote switches and any of the common system status can be correlated to signals, strobes, and relays.

By default, the Auto Configure programs new alarm inputs to activate all signals and strobes, and sets the total GA (General Alarm) Active and Fire Drill Active system status to all signals and strobes. Other input types and status have no output correlations.

Each input and output may be configured to be "silenceable" or not. For signal and strobe outputs this flag indicates whether or not the circuit is turned OFF when signal silence is active. For inputs, the silenceable flag indicates whether or not signals or strobes correlated to that input will be turned OFF when signal silence is active (providing the output has the silenceable flag set). For relay outputs this flag indicates whether this output is affected by common auxiliary disconnect.

By default:

- all signals, strobes are silenceable
- all relays are silenceable (affected by auxiliary bypass)
- all verified and non-verified alarms, and GA inputs are silenceable
- all other inputs and all the system status are non-silenceable

- Inputs and common system status can also be identified second stage inputs. On two-stage systems, second stage inputs activate correlated signals at the evacuation rate instead of alert.
- By default only the total GA, GA active, and fire drill status have the second stage flag set.
- Remote switch inputs may be associated with any of the common controls.

Groups

Groups are created to facilitate the LED point indication for a group of I/Os and also to facilitate the bypass operation. There are three different types of groups that can be created

- LED groups
- Remote LED groups
- Bypass groups

LED Groups

LED groups are created to annunciate a number of input or output circuits, with the same process type, to an LED zone on the RAX-332. A maximum of 64 groups can be created which can be correlated to a maximum of 64 LED zones on two RAX-332 display adder modules. Each LED zone comprises of three LEDs alarm (red), supervisory (amber) and trouble (amber). The status of the group is displayed on the LEDs depending on the process type of the group, for example an alarm group shows the status of the alarm on the alarm LED when the circuit is active and shows the status of trouble on the trouble LED when the circuit is in trouble; the supervisory LED will not be activated in this process type of group.

Remote LED Groups

Remote LED groups have the same features and functionality to that of the local panel LED groups, except that the remote LED groups are annunciated on the remote LED annunciators. The same LED zone to LED groups mapping is applied to all the remote LED annunciators configured for the system. A maximum of 130 groups can be created which can be correlated to a maximum of 200 LED zones on the remote LED annunciators.

Bypass Groups

Bypass groups are created to facilitate the bypass of a group of input and/or output circuits. Bypass groups can be annunciated ONLY on the RAX-332 display adder. There is a maximum of 64 bypass groups that can be created which can be correlated to a maximum of 64 LED zones on two RAX-332 display adders.

INPUT PROCESS TYPES FOR LED GROUPING	OUTPUT PROCESS TYPES FOR LED GROUPING
Alarm: 1. Non-verified alarm 2.Verified alarm 3. Waterflow	Signal: 1. Signal 2. Strobes
Supervisory: 1. Latching supervisory 2. Non-latching supervisory	Relay: 1. All process type relays
Trouble: 1. Trouble	
Property and building safety: 1. Property and building safety	

Remote Switches

Input modules can be configured as remote switches to facilitate certain common control operations remotely. The following common control switches can be associated with the input modules.

- System reset
- Fire drill
- Auxiliary disconnect
- Alm/Sup/Tbl/Bldg Audible Sil (Buzzer Silence)
- Signal silence

- Automatic Alarm Signal Cancel (Acknowledge)
- General alarm

Auto Configuration

Auto-configure automatically detects what devices are at which addresses. They are assigned the following default type:

DEVICE / ADDER TYPE	OPTIONS	DEFAULT (Auto Configure)
analog detector (ion, photo, thermal and multi-sensor)	Verified alarm Non-verified alarm Latching supervisory Non-latching supervisory Trouble Property and building safety	non-verified alarm inputs
contact input module mini module	non-verified alarm inputs Latching supervisory Non-latching supervisory Trouble Property and building safety Waterflow Remote switch	non-verified alarm inputs
relay output module	signals strobes relay outputs	relay outputs
Supervised output module	signal strobes relay output	signal

The auto-configuration is used for the addressable loop(s) only and does not detect any display adder card (RAX-332) or any annunciators (e.g. RA-1000, etc.).

Notes: When auto-configure is run, if a device is found at the same address, the programming is not changed as long as the physical circuit type has not changed. For example, if an ion detector is changed to a thermal detector with the same address it will still be treated as the same input type but if a contact input module is changed to a contact output module the input will be deleted and a new output circuit will be added with the corresponding defaults.

Default Configuration

When the default configuration is active the system reverts back to the default configuration. The following configuration is affected

- All the configurable features revert back to default
- All the devices on the addressable loops are deleted along with their configuration.
- All the groups are deleted along with the correlation to LEDs.
- All the adders are deleted and their respective configuration for example RAX-332, RA-1000 etc.

- The conventional 4 powered output circuits on loop# 0 reverts back to the default configuration with process type as signal and silence-able/non-silence able option as silence-able.
- All the dialer options revert back to default.

Dialer configuration

The FX-350 Series Analog Fire Alarm panel models with a suffix "D" are equipped with a built-in dialer. The dialer provides a means to communicate the status of the panel to the remote monitoring station using dedicated phone lines. There are many standard protocols for communicating with the central monitoring station but the two commonly used are supported by this panel, **SIA DCS** and **Contact ID**.

The dialer configuration menu will only be present on the panels with the built-in dialer.

The dialer configuration menu will have input for telephone line information, report options, time parameters and ring detection. Refer to "CONFIGURATION MENU/3. DIALER CONFIGURATION" on page 25.

Time Configuration

The time configuration is used to set the day light saving time and to compensate the real time clock displayed on the shared display. Daylight time begins in Canada/United States on the first Sunday in April and ends on the last Sunday in October. On the first Sunday in April, the clock is set ahead one hour at 2:00 a.m. local standard time, which becomes 3:00 a.m. local daylight time. On the last Sunday in October, clock is set back one hour at 2:00 a.m. local daylight time, which becomes 1:00 a.m. local standard time.

The time compensation is required since the real time clock crystal is not completely accurate. The time may drift in the positive or negative direction. The allowed compensation is +/- 15 seconds and the compensation is applied once every day at midnight. Positive compensation is added and negative compensation is subtracted from the actual time. The default value for the compensation is 0, i.e. no compensation is applied. The best way to check the accuracy of the clock is to observe the clock for one week and see how much is the drift and in which direction, divide the drift by 7 to get the compensation value.

After Hours Configuration

The "night time" configuration is used for the after hours operation, when the system is operating in automatic mode.   The after hours may be specified in three ways:

|	
start & end time (night time)	-start time and end time for each day which are off hours
	-one start time and one end time can be specified (e.g. 6:00 PM and 8:00 AM)
Weekend time	-start time and end time for the weekend which are off-hours
	-the weekend is considered as Saturday and Sunday only
Holidays	-holidays can be specified for a certain year or can be specified for every year.
	-Holidays with multiple days of duration can also be configured.
	-Maximum of 20 holiday duration can be configured

ⓘ **Note:** All three after hour specifications are optional. By default none are specified (system is always in "daytime" mode). If holidays are specified, the system will go into trouble when the last holiday has passed to indicate that new ones should be entered.

Configuration

The shared display consists of a 2 line by 20 characters LCD and control keys. It operates in three basic modes: status display mode, queue display mode and command mode.

| Shared Display Mode	Function
Status	Status display mode shows system activity when the queues are empty.
Queue	Queue display mode is used to browse the status of all active points in the queue.
Command	Command mode allows the user to execute certain commands, perform certain system tests and configure the system at the front panel.

The following push buttons are used by the shared display:
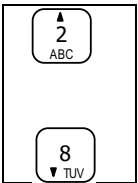
•**UP/DOWN** - scroll through common alarm, supervisory, trouble and property and building safety queues.

- scroll through menu selections when in command mode.
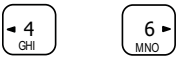
RIGHT/LEFT - moves to the next or previous field or digit in command mode.

- make a selection, for example, checking/unchecking the selection box.

- RIGHT key to add items for example Remote LED groups, correlation etc.

- LEFT key to delete items for example LED groups, etc.
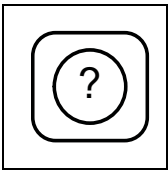
INFO - displays additional information for the currently selected item in queue display mode or when a pre-alarm, alarm verification or retard operation is active in status display mode.
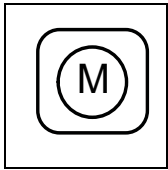
MENU - enter command mode or returns to base menu if already in command mode.
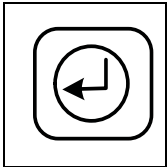
ENTER - accepts currently selected item or menu selection in command mode.
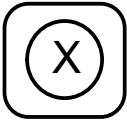
CANCEL - cancels current operation in command mode and returns to previous menu, or exits command mode if at base menu.

ALPHA NUMERIC KEYS

• some commands require the entry of numeric values, for example loop and device address for device configuration or changing the time, etc.

• some configuration requires entering the alpha keys for example, the labels for circuits. Multiple key presses are required for entering an appropriate alpha character. First key press enters the numeric character, the second key press enters the first alpha character and another key press will enter the second alpha character and so on. The sequence is repeated with subsequent key presses. **The * and # keys are used as left and right keys in this mode.**

Command Mode - Configuration & Operation

Pressing the MENU key while the shared display is in status display or queue display mode changes the display to command mode. Command mode allows the user to initiate a number of different functions from menu selections.

After 3 minutes of inactivity, the display will return to status display mode (or queue display mode if there are items in any of the queues). "Inactivity" is defined as a period of time during which none of the shared display control keys are pressed. The display will also return to the status display mode when the first alarm or supervisory alarm is queued.

Menu Operation

Menus are displayed in the following format:

```
---- Command Menu ---
1. Configuration    ↓
```

Where the first line gives the menu title and the second line give the menu options.

Pressing the DOWN key moves the cursor down until it is on the last line at which point the display will show more options (the menu title remains unchanged):

```
---- Command Menu ---
 4. Operation       ↑
```

The up and down arrows at the end of the line indicates that the UP or DOWN key can be used to view more options in the direction of the arrow, if both the arrows are displayed then there are options available in both directions. Pressing ENTER activates the currently selected menu item. Pressing CANCEL will return to the previous menu or exit command mode if the base menu is displayed.

Access Levels & Passcode Entry

Some commands may only be accessed after a passcode has been entered. Four access levels are defined, all except the default (level 0), are associated with a passcode.

When a command is selected, if the current access level is less than the level required, the system will prompt for the passcode:

```
Enter passcode :
_
```

The passcode can be defined as any combination of the numeric characters for a maximum length of 10 digits. There are three access levels available by passcode. The default passcode for access level 1 is 1111, access level 2 is 2222, and access level 3 is 3333.

The user gets three chances to enter a valid passcode. After the third failure, the command is aborted.

When command mode is exited, the access level reverts to default (level 0).

The passcodes may be changed, see Operation Menu section.

Error and Informational Messages

If an error is made during the command mode such as entering a wrong password or an invalid value for a device address an error message is displayed on the LCD for 10 seconds and the operator is given a chance to re-enter the value. The error message may be cancelled before the 10 seconds is up by pressing the CANCEL or ENTER keys. In case of wrong password just by re-entering keys user gets rid of the error message.

Informational messages such as those which are displayed to show that a password has been successfully changed are treated similarly except that CANCEL or ENTER returns to the previous menu which initiated the command.

Command Menu

The command menu is the first menu displayed for command mode. The command menu is divided into four main sub menu categories, the configuration allows full front panel configuration of the system and the operation menu performs certain operations which may not be possible using the common control switches and indicators on the front panel.

```
---Command Menu ---
1 . Configuration
2 . Auto config.
3 . I/O explore
4 . Operation
```

COMMAND MENU/ 1. CONFIGURATION MENU

The configuration menu is divided into the following sub menu items:

```
---Configuration---
1.  Panel config.
2.  Dflt.config.
3.  Dialer config.
4.  Time config.
5.  Afthrs config.
```

The "3. Dialer config" menu will only appear if there is a UDACT on-board.

CONFIGURATION MENU/PANEL CONFIGURATION

The panel configuration is further sub divided into the following sub menus:

```
---Panel config-----
1 . Features
2 . Devices
3 . Correlation
4 . Groups
5 . Remote Sw
6 . User Message
7 . Language
```

PANEL CONFIGURATION/1. FEATURES

The features described are the overall features of the system and their impact is system wide. The default setting in some features is shown as selected.

Panel Configuration/Features/Manual Signal Silence

```
Manual Signal Sil .
[X] Enabled
```

The manual signal silence option will allow silencing of the signal, from the common control signal silence switch, when they are active.

Panel Configuration/Features/Fire Drill

```
Fire Drill
[X] Enabled
```

This function is used to enable/disable fire drill operation from the fire common control fire drill switch at the front panel.

Panel Configuration/Features/waterflow retard operation

```
Water-flow Retard
[ ] Enabled
```

If disabled, all the initiating circuits configured as waterflow act as non-verified alarms. If enabled, retard operation is performed for initiating circuits configured as waterflow. Default is disabled.

Panel Configuration/Features/Auxiliary disconnect, disconnects alarm and supervisory relay

```
Aux Dis. Dis Alm &Spv
[ ] Enabled
```

If enabled the auxiliary disconnect operation, disconnects alarm and supervisory relays disabled the auxiliary disconnect operation has no affect on the alarm and supervisory relays. Default is disabled.

Panel Configuration/Features/Signal silence inhibit timer

```
Sig-sil.inhibit tmr .
[X] Disabled
[ ] 10 sec
[ ] 20 sec
[ ] 30 sec
[ ] 1 min
```

Select the timer value for the signal silence inhibit timer.

Panel Configuration/Features/Auto signal silence timer

```
Auto sig .sil. timer
[X] Disabled
[ ] 5 min
[ ] 10 min
[ ] 15 min
[ ] 20 min
[ ] 30 min
```

Select timer value for the auto signal silence timer.

For UL installations, disable the auto signal silence timer.

Panel Configuration/Features/Number of remote annunciators

The screen will ask if the panel is an LCD or LED, then the following menu will show up for either.

```
No. of remote annun .
[X] None
[ ] 1
[ ] 2
[ ] 3
[ ] 4
[ ] 5
[ ] 6
[ ] 7
[ ] 8
```

Select the number of remote annunciators.

Note: Addresses available for remote annunciators are 1 through to and including 7. Please note that the LED remote annunciators **MUST** have lower value addresses than any LCD remote annunciators.

Panel Configuration/Features/Alarm transmit silence

```
Alm. xmit. sil.
[ ] Enabled
```

This feature allows the alarm transmits and auxiliary alarm relay to reset on "SIGNAL SILENCE" rather than the "RESET" switch if enabled. Default is disabled.

Panel Configuration/Features/Power fail timer

```
AC pwr.fail dly. tmr
[X] None
[ ] 1 Hr
[ ] 2 Hrs
[ ] 3 Hrs
```

This feature allows a programmed delay before the AC fail trouble is transmitted by __the optional PR-300__.   (Note: the delay for transmission by the dialer is configured under Dialer Configuration – Item 4 –Time Parameters - AC Loss Delay.)

Panel Configuration/Features/Common supervisory relay

```
Common supv . relay
[ ] Enabled
```

This feature is used to make the common supervisory relay acts as a common alarm relay if enabled. Default is disabled.

Panel Configuration/Features/Signal silence isolator

```
Sig. sil. isolator
[ ] Enabled
```

This feature makes the system aware that the isolators are present on the main panel powered output circuits if enabled. Default is disabled.

Panel Configuration/Features/Strobe types

```
Strobes type
[X] Normal
[ ] Gentex
[ ] System Sensor
[ ] Mircom
[ ] Faraday
[ ] Wheelock
```

Select the strobe manufacturer for synchronous strobes. Synchronous strobes are driven by following a different ON/OFF pattern depending on the manufacturer's specification. Normal means the strobes are not synchronized and when the circuit gets active it is turned ON steady. This feature applies to the main panel powered output circuits, configured as strobes, only.

i **Note:** Once a specific type of strobe is selected, for example Mircom, then only this type of strobe is allowed for the entire system.

Panel Configuration/Features/Evacuation code

```
Evacuation code
[ ]  Continuous
[ ]  March Time
[X]  Temporal
[ ]  California
```

Select the evacuation code for the 2nd stage in a two stage system and for the 1st stage in a single stage system.

Panel Configuration/Features/Property and building safety alert

```
Monitor alert
[ ]  Enabled
```

Alert sounds for property and building safety input activation. Default is disabled.

Panel Configuration/Features/Device LED flashing

```
Pooled dev . flashes
[ ]  Enabled
```

This feature allows flashing of the LED on the addressable sensors to flash momentarily, while polling, if enabled. The input and output modules LED always flashes, while polling, regardless of this feature enabled or disabled.

Panel Configuration/Features/Class-A loop

```
Loop class A
[ ]  Enabled
```

This feature configures all addressable loops as Class A if enabled.

Panel Configuration/Features/Auto after hours

```
Auto after hours
[ ]  Enabled
```

This feature allows the daytime/nighttime mode to be set automatically if enabled.

Panel Configuration/Features/Two stage operation

```
Two stage operation
[ ]  Enabled
```

If this feature is enabled the system is configured as two-stage system, if <u>not</u> enabled, it is a single stage system.

Use this function to allow the system to perform a two-stage operation if enabled. This selection also sets the Auto General Timer to 5 minutes. The user should always either disable the Auto Signal Silence Timer or set it to be greater than the Auto General Alarm Timer.

For UL installations, disable the auto signal silence timer.

Panel Configuration/Features/Positive Alarm Sequence

```
Pos. Alarm Sequence
[  ]  Enabled
```

If this feature is enabled the system allows for Positive Alarm Sequence alarm signals from automatic fire detection devices. This selection is mutually exclusive with Two Stage Operation, i.e. you can have one or the other and not

both. Any devices deemed PAS will activate the common alarm LED, the individual LED (if programmed), flash the Automatic Alarm Signal Cancel LED and sound the alarm buzzer at the panel. The LCD display will also declare the PAS alarm. There will be no alarm signalling initially. All evacuation signal and off-premises signalling will be activated if the Automatic Alarm Signal Cancel button is not pressed within 15 seconds of the PAS alarm and the RESET button is not pressed within 180 seconds from the acknowledge, or if a second device goes into alarm.

Panel Configuration/Features/General alarm timer

```
Auto gen .alarm timer
[X] Disabled
[ ] 5 min
[ ] 10 min
[ ] 15 min
[ ] 20 min
[ ] 30 min
```

This feature sets the value for the general alarm timer.

Panel Configuration/Features/Common alarm relay operation

```
Common alm rly . oper
[ ]  Both stages
[X] Second stage
```

This feature sets the operation of the common alarm for two stage system.

Panel Configuration/Features/Display adders (For FX-351 Model only)

```
Display adder cards
[X] 1
[ ] 2
```

This feature selects the number of RAX-332 present in the system, by default one is always present.

Panel Configuration/Features/Agency selection

```
Jurisdiction
[ ] ULI
[X] ULC
```

This feature selects the agency having jurisdiction for the panel.

PANEL CONFIGURATION/2. DEVICES CONFIGURATION

The device configuration is divided into 6 sub menu items. The user is asked to enter the loop number and the device address to proceed with the device configuration.

```
Device address
Loop :___ DevAddr :___
```
Use # key to move to the Device Address position.

If the device is not already configured the next screen will prompt the user for adding the new device.

```

Add Circuit ?Y/N
```

After the confirmation the following options are available for configuring a device.

```
---  Devices ---
1. Device Type
2. Sensitivity
3.  Process Type
4. Silenceable
5. 2nd Stage/PAS
6. Label
```

If the device already exists and needs to be changed, you will be prompted for change request and then to the next section for device type.

Panel Configuration/Devices/1. Device type

The following selection is available for the devices. This selection includes both the input and output devices.

```
--- Device Type ---
1. XP95 Ion
2. XP95 Photo
3. XP95 Thermal
4. XP95 Multisens
5. XP95 Contact
6. XP95 Contactmi
7. XP95 SpvOpt
8. XP95 Single Rly
9. XP95 Dual Rly
```

Note: Addressable Pull Stations should be selected as Contact Mini device types, Monitor Modules as Contact devices and Mini Monitor Modules as Contact Mini.

Panel Configuration/Devices/2. Sensitivity (Inputs)

```
Sensitivity
1. Normal
2. Off hours
```

This option will set the sensitivity for the ion, photo multi-sensor and thermal for the normal and off-hours time. The sensitivity of the sensors can be set to full range depending upon the agency selection.

If UL or ULC is selected, the following range of sensitivity in %/ft obscurity is available for both the normal and off-hours times:

SENSOR	UL	ULC
Ion	0.6 to 1.3% obscurity	
Photo	1.8 to 3.4% obscurity	2.6 to 3.2% obscurity
Thermal	55 to 90 degrees centigrade (131 to 194 degrees fahrenheit)	55 to 90 degrees centigrade
Mult-sensor	0.7 to 4.0% obscurity	1.3 to 4.0% obscurity

For example the obscurity level is set for a photoelectric sensor below:

```
----- Normal -------
3.4 %/ft obsc
```

```
-----Off hours ------
3.0 %/ft obsc
```

Use the UP/DOWN key for scrolling the values.

Thermal sensor sensitivity does not depend on the drift compensation algorithm or agency selection. The full range of temperature in degrees Celsius is available.

```
-----Normal -------
55 degree C
```

```
-----Off hours ------
55 degree C
```

Heat sensors can also be set to activate at a fixed 8.33 degrees Celsius per minute rate of rise of temperature.

```
----Rate of rise ---
[ ] Yes
[X] No
```

By selecting 'Yes' the detector will activate at a fixed rate of rise temperature of 8.33 degree C/min.

Panel Configuration/Devices/3. Process type

The following selections are available for the process type. Choose according to device type. The following is the list of process types for addressable sensors which are **items 1 to 4 in the device type menu**.

```
--- Process Type ---
1. Alarm ver.
2. Alarm non-ver.
3. Spv latch
4. Spv nlatch
5. Trouble
6. Monitor
```

The following is the list of process types for <u>input modules</u> which are **items 5 and 6 in the device type menu.**

```
--- Process Type ---
1. Alarm prio.
2. Alarm nver
3. Spv latch
4. Spv nlatch
5. Waterflow
6. Trouble
7. Monitor
8. Rem Swi
```

The following is the list of process types for <u>output modules</u> which are **items 7, 8 and 9 in the device type menu**.

```
----Process type ---
1. Signal
2. Strobe
3. Relay
```

> **Note:** If Strobe is selected as the process type, make sure the proper strobe type is selected under the Panel Configuration Features Menu.

Panel Configuration/Devices/4. Silenceable

```
 Silenceable? [N]
```

This option allows configuring the input or output circuit as silenceable or non-silenceable.

Panel Configuration/Devices/4. Delay (Outputs)

This feature allows an output circuit to be delayed from 5 seconds up to 9995 seconds (selectable in multiples of 5 seconds). Up to 16 circuits can be independently delayed this way. During Walk Test, these delays are ignored.

Panel Configuration/Devices/5. Second Stage (Inputs)

```
2ndStage/PositiveAlm
[X] Enabled
```

If configured as YES (X in brackets) the input circuit will activate the second stage **OR** will process the Positive Alarm Sequence as chosen in the PANEL CONFIGURATION/Features section.

Panel Configuration/Devices/5. Class A (Outputs)

This feature allows an output circuit to be wired as Class A.

Panel Configuration/Devices/6. Label

```
  Label? [Y]
```
If yes, then enter the label
```
Enter new tag...
_
```

This option allows affixing a label of a maximum of 20 characters to any device (input or output). This label is displayed on the shared display when the device gets active or in trouble. Just type in the new tag or edit as required.

PANEL CONFIGURATION/3. CORRELATION

The user is prompted to enter the loop number and address of the device to be correlated

```
Ipt Dev Loop # & Addr
Loop :__ DevAddr :___
```

The list of all the output devices is then displayed to which the input device is correlated to or an empty list.

```
Correlation
LP:01 ADDR:004
LP:01 ADDR:006
LP:01 ADDR:008
```

The user can press RIGHT arrow key to add and LEFT arrow key to delete an output device. When a user deleted a device after the confirmation, the group is deleted and the list is updated. To add a device the user is prompted for confirmation as shown below.

```
Add Correlation
Yes/No
```

After the confirmation the user is prompted for entering the output device. The circuits are recognized by the Loop# and the device address as shown below.

```
Opt Dev Loop # & Addr
Loop :__ DevAddr :___
```

After the device is added the list is updated and the user can add more devices to the list or press the CANCEL key to go back to the previous menu.

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PANEL CONFIGURATION/4. GROUPS

```
------ Groups --------
1. Led Groups
2. Rem Led Groups
3. Bypass Groups
```

Panel Configuration/Groups/1. LED Groups

The LED groups are used to map a number of similar process type inputs and/or outputs to LEDs on a RAX-332 adder modules. Each RAX-332 has 32 LED zones and a maximum of two RAX-332 are allowed per fire alarm. The LED zone mapping is achieved by creating a group of either input or output circuits with the same basic process types such as alarm, supervisory, trouble, property and building safety and signal. The group is then assigned to an LED zone on the RAX-332 display adder.

Note: An LED zone consists of two LEDs, one dual color (red/amber) for annunciating alarm/supervisory condition and the other is amber for annunciating trouble condition.

If there are no LED groups configured the following message is displayed is:

```
---- LED Groups -----
No LED groups
```

If there are LED groups already configured the list of all the configured groups is shown in the following format.

```
---- LED Groups ---
LED Floor A
LED Floor B
LED Floor C
```

Sixty-four LED groups are available. There is a label associated with each LED group and the groups are solely recognized by its label.

The user can press RIGHT arrow key to add and LEFT arrow key to delete a group. When a user deleted a group after the confirmation, the group is deleted and the list is updated. When the user adds a group an empty group is created with group type defaulted as alarm.

To configure an LED group the user can press the ENTER key with the group selected on the second line of the display. The following options are available to configure an LED group.

```
---- LED Groups ----
1 . Type
2 . Group members
3 . Led map
4 . Label
```

Here the basic process type of the group is selected and if the group is selected of a certain process type then only circuits with that process type can be added to the group. The following list shows the type of the group that can be selected. Item 1 to 4 is dedicated to input circuits and items 5 and 6 are dedicated to output circuits.

```
------ Type -------
1 . Alarm
2 . Supervisory
3 . Monitor
4 . Trouble
5 . Signal
6 . Relay
```

Selecting the group members shows the list of all the group members of the group. The members/circuits are recognized by the Loop# and the device address.

```
---Group members ---
Lp:01  DevAddr :006
Lp:01  DevAddr :008
Lp:01  DevAddr :010
```

The user can press RIGHT arrow key to add and LEFT arrow key to delete a group member. When a user deleted a group member after the confirmation, the group member is deleted and the list is updated. When the user adds a group member the user is prompted to add a member/circuit.

```
Dev Loop # & Addr
Loop :__  DevAddr :___
```

After the circuit is added the list is updated and re-displayed on the shared display.

Selecting LED map will allow the user to assign the group a zone LED on the RAX-332. LEDs are numbered from 1 to 32 for the first RAX-332 and from 33 to 64 for the second and last RAX-332. The user is prompted to enter the zone LED no as shown below.

```
------ Led map ------
Zone Led No :__
```

Panel Configuration/Groups/2. Remote LED Groups

Remote LED groups are used to map the remote LED annunciator's LEDs to a group of input and/or output circuits. There is a maximum of 200 LED zones available that can be mapped to remote LED groups and the maximum number of remote LED groups that can be created is 130.

> **Note:** When using an SRM-312 Smart Relay module, the relays **must** be mapped to the first 12 (or less if not using all the relays) remote LEDs.

The remote LED zone mapping is carried out by creating a group of either input or output circuits with the same basic process type of alarm, supervisory, trouble, property and building safety and signal. The group is then assigned to an LED zone on the remote LED annunciator.

The mapping is duplicated to multiple LED annunciators if added.

 If there are no Remote LED groups configured the following message is displayed.

```
---Rem LED Groups --
No Rem LED groups
```

If there are Remote LED groups already configured the list of all the configured groups is shown in the following format.

```
--Rem LED Groups--
Rem LED Floor A
Rem LED Floor B
Rem LED Floor C
```

There is label associated with each remote LED group and the groups are solely recognized by its label, such as "Floor A".

The user can press RIGHT arrow key to add and LEFT arrow key to delete a group. When a user deleted a group after the confirmation, the group is deleted and the list is updated. When the user adds a group an empty group is created with group type defaulted as alarm.

To configure a remote LED group the user can press the ENTER key with the group selected on the second line of the display. The following options are available to configure a remote LED group.

```
---- LED Groups ----
1 . Type
2 . Group members
3 . Led map
4 . Label
```

Here the basic process type of the group is selected and if the group is selected of a certain process type then only circuits with that process type can be added to the group. The following list shows the type of the group that can be selected. Item 1 to 4 is dedicated to input circuits and the items 5 and 6 are dedicated to output circuits.

```
------ Type -------
1 . Alarm
2 . Supervisory
3 . Monitor
4 . Trouble
5 . Signal
6 . Relay
```

Selecting the group members shows the list of all the group members of the group. The members/circuits are recognized by the Loop# and the device address.

```
---Group members ---
Lp:01 DevAddr :006
Lp:01 DevAddr :008
Lp:01 DevAddr :010
```

The user can press RIGHT arrow key to add and LEFT arrow key to delete a group member. When a user deleted a group member after the confirmation, the group member is deleted and the list is updated. When the user adds a group member the user is prompted to add a member/circuit.

```
Dev Loop # & Addr
Loop :__ DevAddr :___
```

After the circuit is added the list is updated and re-displayed on the shared display.

Selecting LED map will allow the user to assign the group a zone LED on the remote LED annunciator. LEDs are numbered from 1 to 200. The user is prompted to enter the zone LED no as shown below.

```
------ Led map ------
Zone Led No :__
```

Panel Configuration/Groups/3. Bypass Groups

Bypass groups are used to bypass a group of circuits, input circuits, output circuits or a combination, by using control command using the shared display and the keypad.

The bypass groups can be mapped to RAX-332 zone LEDs and cannot be mapped to remote LED annunciators zone LEDs.

If there are no bypass groups configured the following message is displayed.

```
---Bypass groups ---
No bypass groups
```

If there are bypass groups already configured the list of all the configured groups is shown in the following format.

```
--- Bypass groups--
1. Bypass Floor A
2. Bypass Floor B
3. Bypass Floor C
```

There is a label (which must be entered) associated with each bypass group and the groups are solely recognized

by its label, such as "Floor A". Fourteen characters are allowed for each label. The label is fully editable and should be selected as a meaningful reference to the group.

The user can press RIGHT arrow key to add and LEFT arrow key to delete a group. When a user deletes a group, after the confirmation, the group is deleted and the list is updated. When the user adds a group an empty group is created.

To configure a bypass group the user can press the ENTER key with the group selected on the second line of the display. The following options are available to configure a bypass group.

```
---Bypass groups---
 1 . Input circuits
 2 . Output circuits
 3 . Led map
 4 . Label
```

Selecting the input circuits shows the list of all the input circuits of the group. The circuits are recognized by the Loop# and the device address as shown below.

```
---Input circuits ---
Lp:01 DevAddr :006
Lp:01 DevAddr :008
Lp:01 DevAddr :010
```

The user can press RIGHT arrow key to add and LEFT arrow key to delete an input circuit. When a user deletes an input circuit, after the confirmation, the circuit is deleted and the list is updated. When the user adds an input circuit the user is prompted to add an input circuit.

```
Ipt Dev Loop # & Addr
Loop :__ DevAddr :___
```

After the circuit is added the list is updated and re-displayed on the shared display.

Selecting the output circuits shows the list of all the output circuits of the group. The circuits are recognized by the Loop# and the device address as shown below.

```
--Output circuits ---
Lp:01 DevAddr :006
Lp:01 DevAddr :008
Lp:01 DevAddr :010
```

The user can press RIGHT arrow key to add and LEFT arrow key to delete an output circuit. When a user deleted an output circuit, after the confirmation, the circuit is deleted and the list is updated. When the user adds an output circuit the user is prompted to add an output circuit.

```
Opt Dev Loop # & Addr
Loop :__ DevAddr :___
```

After the circuit is added the list is updated and re-displayed on the shared display.

Selecting LED map will allow the user to assign the bypass group a zone LED on the RAX-332. LEDs are numbered from 1 to 32 for the first RAX-332 and from 33 to 64 for the second and last RAX-332. The user is prompted to enter the zone LED number as shown below.

```
------ Led map ------
Zone Led No :__
```

i **Note:** Associating a bypass group to an LED is not mandatory. Check with the local AHJ.

PANEL CONFIGURATION/5. REMOTE SWITCHES

Remote switch configuration allows the user to associate any input, configured as remote switch, to be associated with the following common control switches.

```
--Remote switches --
1. System reset
2. Fire Drill
3. Aux disconnect
4. Buzzer silence
5. Signal silence
6. Acknowledge
7. General Alarm
```

Selecting system reset will display the following message if there is no input circuit associated with the switch.

```
---System reset ----
empty
```

If there is input circuit(s) associated with the system reset the list of the associated input circuits is displayed. The circuits are recognized by the Loop# and the device address as shown below.

```
---System reset ----
Lp:01 DevAddr :006
Lp:01 DevAddr :008
Lp:01 DevAddr :010
```

The user can press RIGHT arrow key to add and LEFT arrow key to delete an input circuit. When a user deleted an input circuit, after the confirmation, the circuit is deleted and the list is updated. When the user adds an input circuit the user is prompted to add an input circuit.

```
Ipt Dev Loop # & Addr
Loop :__  DevAddr :___
```

The operation is true for all the 7 common control switches except that the switches are different.

PANEL CONFIGURATION/6. USER MESSAGE

Allows you to edit (change) the FACP Front Panel Message, i.e. "Welcome to Mircom".

PANEL CONFIGURATION/7. LANGUAGE

Allows you to select the language of the LCD display. English is the default. To change the language to French, select French in the panel configuration menu, then exit the configuration and then re-enter and select auto default.

CONFIGURATION MENU/2. DEFAULT CONFIGURATION

This option will load the default configuration in the system. The user is prompted for confirmation.

```
Load the default
Settings ?Y/N
```

After the default settings are loaded the following is displayed for confirmation.

```
Default settings
have been loaded .
```

CONFIGURATION MENU/3. DIALER CONFIGURATION

The dialer configuration is divided into 6 sub menus.

--Dialer config --
1. Account Info
2. Telephone line
3. Report Options
4. Time parameter
5. Enable /Disable
6. Ring Detect

Configuration Menu/Dialer Config/1. Account Info

--Account Info --
1. Account #1 ID
2. Account #1 Tel
3. Accnt #1 format
4. Account #2 ID
5. Account #2 Tel
6. Accnt #2 format

Configuration Menu/Dialer Config/Account Info/1. Account#1 ID

Account #1 ID
123456

Set the Account ID for the monitoring station to which the dialer reports events, the maximum # of digits allowed for SIA protocol is 6 and for contact ID protocol is 4. For SIA protocol the allowed digits are simple 0 to 9 while for contact ID the hexadecimal digits are used i.e. fro 0-9 and A to F. To enter hexadecimal digits, press the Menu button. The letter "A" will appear. Press the Menu button again to scroll through the rest of the letters, to move the cursor forward press # or press * to move it backward. The default account ID is "123456".

Configuration Menu/Dialer Config/Account Info/2. Account#1 Telnum

Account #1 Telnum :
101

Sets the telephone number of the monitoring station, the maximum # of digits allowed is 19 including "," and numerals. The "," will be treated as 1 sec delay. To enter ',' press MENU key, to move the cursor forward use '#' key and to move the cursor backward use the '*' key. An example of a typical telephone # is 9,,1234567. The default phone number is "101".

Configuration Menu/Dialer Config/Account Info/3. Account#1 format

Accnt #1 format
[X] Contact ID
[ ] SIA 300 baud
[ ] SIA 110 baud

Set the reporting format that is recognized or preferred by the monitoring station.

Configuration Menu/Dialer Config/Account Info/4. Account#2 ID

```
Account #2 ID
654321
```

Set the Account ID for the monitoring station to which the dialer reports events, the maximum # of digits allowed for SIA protocol is 6 and for contact ID protocol is 4. For SIA protocol the allowed digits are simple 0 to 9 while for contact ID the hexadecimal digits are used i.e. fro 0-9 and A to F. To enter hexadecimal digits, press the Menu button. The letter "A" will appear. Press the Menu button again to scroll through the rest of the letters, to move the cursor forward press # or press * to move it backward. The default account ID is "123456".

Configuration Menu/Dialer Config/Account Info/5. Account#2 Telnum

```
Account #2 Telnum :
101
```

Sets the telephone number of the monitoring station, the maximum # of digits allowed is 19 including "," and numerals. The "," will be treated as 1 sec delay. To enter ',' press MENU key, to move the cursor forward use '#' key and to move the cursor backward use the '*' key. An example of a typical telephone # is 9,,1234567. The default phone number is "101".

Configuration Menu/Dialer Config/Account Info/6. Account#2 format

```
Accnt #2 format
[X] Contact ID
[ ] SIA 300 baud
[ ] SIA 110 baud
```

Set the reporting format that is recognized or preferred by the monitoring station.

Configuration Menu/Dialer Configuration/2. Telephone Line

```
--Telephone Line --
1. Line1 dialtype
2. Line2 dialtype
3. Line1 dialtone
4. Line2 dialtone
5. No of retries
```

Configuration Menu/Dialer Configuration/Telephone line/1. Line 1 dialtype

```
Line1 dialing type :
[X] DTMF dial
[ ] Pulse dial
```

Sets the dialing type for the phone line# 1.

Configuration Menu/Dialer Configuration/Telephone line/2. Line 2 dialtype

Same as line 1.

Configuration Menu/Dialer Configuration/Telephone line/3. Line 1 dialtone

```
Line#1 wait dialtone
[X] Enabled
```

Use this function to let the system know whether or not to wait for a dial tone before dialing. Cell phone set-up for the dialer requires that the system not wait for dial tone before dialing.

Configuration Menu/Dialer Configuration/Telephone line/4. Line2 wait dialtone

Same as line 1.

Configuration Menu/Dialer Configuration/Telephone line/5. Number of retries

```
No of retries
06
```

Set the number of retries for both line#1 and line#2. This function lets the dialer retry on either line if it is busy or not available. If the retry count expires, the panel reports a line trouble.

Configuration Menu/Dialer Configuration/3. Report Options

```
---Report options --
1. Alarm Prio
2. Trouble Prio
3. Supv. Priority
4. Aux. Alarm/Supv.
5. Operation mode
```

Configuration Menu/Dialer Configuration/Report Options/1. Alarm priority

```
Alarm priority :
[X] Account 1
[ ] Account 2
```

Use this function to set the account priority for reporting alarms. If the priority is set for account#1 then the dialer will try account#1 first for reporting.

Configuration Menu/Dialer Configuration/Report Options/2. Trouble priority

```
Trouble priority :
[X] Account 1
[ ] Account 2
```

Use this function to set the account priority for reporting troubles. If the priority is set for account#1 then the dialer will try account#1 first for reporting.

Configuration Menu/Dialer Configuration/Report Options/3. Supervisory priority

```
Supv. priority :
[X] Account 1
[ ] Account 2
```

Use this function to set the account priority for reporting supervisory. If the priority is set for account#1 then the dialer will try account#1 first for reporting.

Configuration Menu/Dialer Configuration/Report Options/4. Auxiliary Bypass Alarm/Supervisory

Auxiliary disconnect cancels alarm & supervisory reporting through dialer.

```
Aux: Bypass Alm/Supv
[X] Enabled
```

If this function is enabled, the auxiliary disconnect will block the alarm and supervisory events from being reported through the dialer.

Configuration Menu/Dialer Configuration/Report Options/5. Dialer Operation Mode

```
Dialer oper mode
[X] (U)DACT
[ ] DACT
```

Use this function to select the functionality of the dialer. In DACT mode only common trouble/alarm/supervisory are reported while in UDACT mode all point information is reported.

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Configuration Menu/Dialer Configuration/4. Time Parameters

```
Time parameters
1. AC loss delay
2. Cell phone date
3. Auto test time
```

Configuration Menu/Dialer Configuration/Time Parameters/1. AC Loss delay

```
AC Loss delay (hrs)
0
```

Use this function to delay the reporting of AC loss trouble on the dialer for the programmed time period. (Note: the PR-300 delay is configured separately. See Features Item 10 - Power Fail Timer.)

Configuration Menu/Dialer Configuration/Time Parameters/2. Cell phone date

```
Cellular report date
0
```

Use this menu to set the test report date for the cell phone setup. Set this menu to 0 if there is no test reporting for a cell phone, or if the phone line is a regular line. Set this menu from 01 to 28 to schedule a test for Line 2 on a certain day of the month. See Auto Test Time and Cellular Report Date on page 29 for more information. When a cell phone service is employed for the panel, it should only be connected to telephone line #2 CO interface. Also, the dial tone detection feature of Line 2 should be disabled for cell phone application.

Configuration Menu/Dialer Configuration/Time Parameters/3. Auto test time

```
Auto test  (HH:MM)
Time: 00:30 AM
```

Use this function to set the time for the automatic test. When this test is performed, the test report is sent to the monitoring station. This test must be performed at least once a day. The time is in 24 hour format, which means 00:30 is 30 minutes after midnight.

The Auto test time can be configured to: 12:00 a.m. to 5:59 a.m.: test every 24 hours 6:00 a.m. to 11:59 a.m.: test every 6 hours 12:00 p.m. to 23:59 p.m.: test every 12 hours If the Cellular report date is set to 0, then the test alternates between Line 1 and Line 2. See Auto Test Time and Cellular Report Date on page 29 for more information.

To minimize receiver congestion, do not use the following test times: 00:00, 01:55, 02:00 and 03:00.

Auto Test Time and Cellular Report Date

If the Cellular report date is set to 0, then the dialer alternates between Lines 1 and 2 when performing the automatic test. If the Cellular report date is not set to 0, then the automatic test is performed on Line 1 except on the Cellular report date, when it is performed on Line 2. See examples in the following table.

Table 2 Auto Test Time and Celllular Report Date

Cellular Report Date	Auto Test time	Line 1 Test	Line 2 Tested
0	00:30	12:30 a.m. every other day (alternates with Line 2)	12:30 a.m. every other day (alternates with Line 1)
0	6:00	6:00 a.m. and 6:00 p.m.	12:00 p.m. and 12:00 a.m.
0	12:00	12:00 p.m.	12:00 a.m.
15	00:30	12:30 a.m. every day except on the 15th of the month	12:30 a.m. on the 15th of the month
15	6:00	6:00 a.m., 12:00 p.m., 6:00 p.m., and 12:00 a.m. every day except on the 15th of the month	6:00 a.m., 12:00 p.m., 6:00 p.m., and 12:00 a.m. on the 15th of the month
15	12:00	12:00 p.m. and 12:00 a.m. every day except on the 15th of the month	12:00 p.m. and 12:00 a.m. on the 15th of the month

Configuration Menu/Dialer Configuration/5. Enable/Disable dialer

```
Dialer Dis /Ena
[X]  Enabled
```

The dialer is enabled by default. When the dialer is enabled or disabled, a warning message appears.

```
-----Warning------
Dialer disabled !!!
```

Note: The dialer cannot report any event to the monitoring station if it is disabled.

Configuration Menu/Dialer Configuration/6. Ring Detect

```
--Ring detect no --
[ ]  Disabled
[ ]  1
[ ]  2
[ ]  3
[ ]  4
[X]  5
[ ]  6
[ ]  7
[ ]  8
```

Use this menu item to select the number of rings on which the panel's modem will answer. The default number of rings is five. The maximum number of rings you can define is eight. If you select the "Disabled" option, the modem will be disabled and the panel will not pick up the incoming call.

CONFIGURATION MENU/4. TIME CONFIGURATION

Time configuration allows to set the daylight time saving mode and to set the appropriate compensation for the time drift in real time clock.

```
Time clock config
1. Daylight save
2.Compensation
```

1. Daylight saving mode can be enabled or disabled.

```
Daylight saving
[ ] Enable
```

2. Daily compensation can be from -15 to +15 seconds and is applied at the midnight every day. Select the compensation value by scrolling up and down using the UP and DOWN keys.

```
Daily Compensation
Seconds :00
```

CONFIGURATION MENU/5. AFTER HOURS TIME CONFIGURATION

After hours duration for which the panel is in after hours mode can be entered in the following three ways.

```
Afthrs config
1. Set night time
2. Set weekends
3. Set holidays
```

1. For weekdays the user is prompted to enter the start time and the end time for which the panel is in off-hours mode.

```
Night time start
Time : 06:00 PM
```

```
Night time end
Time : 08:59 AM
```

2. For weekends (Saturday and Sunday) the user is prompted to enter the start time and the end time for which the panel is in off-hours mode.

```
Weekend start
Time : 06:00 PM
```

```
Weekend end
Time : 08:59 AM
```

3. For holidays, a list of holidays is show, the user can press RIGHT key to add and LEFT key to delete the holidays or can press ENTER to edit the holiday.

```
Holidays
JAN 01, YYYY
JUL 01, YYYY
DEC 25, YYYY
```

For example to add a holiday for July 4th for every year, set the start date leave the year as YYYY.

```
Holiday start
Date : Jul 04, YYYY
```

Set the end date which is the next day if the holiday is for one day only, leave the year as YYYY.

```
Holiday end
Date: Jul 05, YYYY
```

To add a holiday for May 1st for 2006 only, set the date including the year.

```
Holiday start
Date: May 01, 2006
```

Set the end date which is one day after the holiday including the year.

```
Holiday end
Date: May 02, 2006
```

Enable the every year option, so the holiday is applied to every year.

```
Every year ?
[X] Enable
```

Multiple day holidays can also be entered by entering the appropriate start and end date.

COMMAND MENU/2. AUTO CONFIGURATION

Auto configuration automatically detects devices and their addresses, if no changes are found during the scan of the loops the following message is displayed.

```
No changes found .
Auto program aborted
```

If new devices are found on the loops, the user is prompted of the fact and for confirmation to add the new devices as shown below:

```
XXX new device (s)
found on loop . Add?
```

If the devices are missing:

```
Xxx device (s) are
Missing . Delete ?Y
```

If finds different device types from original but still compatible:

```
Xx device (s) on lp:x
Chgd .update type ?Y
```

If finds different device types from original and not compatible:

```
Xx device (s) on lp:x
chgd . Delete & add?Y
```

A warning message is displayed if the configuration is changed before continuing:

```
Sys must be rechked
when done !continue ?Y
```

The following message is displayed while the auto programming is in progress.

```
Auto Programming
In process
```

COMMAND MENU/3. I/O EXPLORE MENU

Selecting this menu, the system will scan all the inputs and outputs

```
Scanning for loops
And devices ...
```

and report, on the LCD display, the number of loops found in the system.

```
3 lp(s) found:
#1,#2,#3
```

To access more information, keep pressing the Enter button. Next, the system will list the number of input and output devices, and so on.

```
013 dev(s) found
Lp:1     Addr:002
```

Use the up/down keys to scroll through the devices found.

When you have all the information you need, press Cancel to exit.

COMMAND MENU/4. OPERATION MENU

The operation menu is divided into the following sub menu items.

```
---Operation Menu---
  1. Set Time
  2. Set password
  3. Reports
  4. Clear logs
  5. Walk test
  6. Bypass
  7. Aux. disc.
  8. Test Dialer
  9. After hours
 10. Clear veri cnts
 11. Gnd. Fault test
 12. Exit
```

The "8. Test Dialer" menu will only appear if there is a UDACT on-board.

OPERATION MENU/1. SET TIME

```
Date: Oct 08, 2005
Time: 10:00 PM
```

Set the current date and time for the panel. Use the '#' key to move the cursor forward and the UP and DOWN key to change the date/time parameters.

OPERATION MENU/2. SET PASSWORD

This menu is used to set the password for all three access levels. For changing a specific level of password the password required is the equivalent level or higher level.

The user is prompted to enter the access level for which the password needs to be changed.

```
Access Level :1
```

The user is then prompted to enter the current access level or higher level password. The maximum number of digits allowed is 10.

```
Enter password
_____
```

If the password is not right the user is given three chances to enter the correct password and during this time an invalid password message is display to prompt the user the password is not right. After the three failed tries the display falls back to the main operation menu.

```
Invalid password

```

If the password is right the user is prompted to enter the new password.

```
Enter new password
_____
```

To confirm the password the user is prompted to re-enter the password again.

```
Re-enter password
_____
```

OPERATION MENU/3. REPORTS

Reports can be displayed on the shared display for the following items.

```
Report Menu
1. Alarm Log
2. Event Log
3. Current levels
4. Verif Counts
5. Maint Report
```

Operation Menu/Reports/1. Alarm log

```
Nverf alm ipt
Active        002/016
```

The alarm logs are displayed in the above format, pressing the INFO key shows additional information about the log.

```
Lp:1  Addr:002
Jul 20, 2005 09:25AM
```

Operation Menu/Reports/2. Event logs

Event log(s) has the same format as alarm log.

Operation Menu/Reports/3. Current level

The user is prompted to enter the loop no of the device to which it is connected.

```
Loop Number
Loop:__
```

The current level and the percentage alarm is shown in the following format.

```
Lp:1 Addr:001
Levl:0024 Alarm:000%
```

The user can press UP and DOWN key to scroll through all the analog devices on the loop. If there are no analog devices on the loop the following message will be displayed.

```
No analog devices
found
```

Operation Menu/Reports/4. Verify counts

The user is prompted to enter the loop no of the device to which it is connected.

```
Loop Number
Loop:__
```

The verify count is shown in the following format.

```
Lp:1 Addr:001
Verify count :000
```

The user can press UP and DOWN key to scroll through all the devices on the loop for which the verify count is available. If there are no verified devices on the loop the following message will be displayed.

```
No verified devices
found
```

Operation Menu/Reports/5. Maintenance report

The user is prompted to enter the loop no of the device to which it is connected.

```
Loop Number
Loop:__
```

The maintenance report is shown in the following format.

```
Maint Report
Percent dirty :012%
```

The user can press UP and DOWN key to scroll through all the devices on the loop for which the maintenance report is available. If there are no dirty devices on the loop the following message will be displayed.

```
No dirty devices
found
```

OPERATION MENU/4. CLEAR LOGS

Clears the logs stored in the flash memory.

```
Select Log
1. Alarm Log
2. General Log
3. All Logs
```

The options are to clear only the alarm logs, event logs or all the logs. The user is prompted for confirmation.

```
Clear all the
Selected log (s)?Y/N
```

After confirmation the logs are cleared and the following information message is displayed.

```
Log(s) cleared
```

OPERATION MENU/5. WALK TEST

Selecting Walk Test on the command menu allows the user to initiate a silent or audible Walk Test. The user is prompted to select the audible or silent walk test.

```
Select Test Type
1. Audible Test
2. Silent Test
```

After the user makes a selection the following message will show the walk test initializing.

```
Initializing
Walk test ...
```

Entering walk test, places the system in trouble. The trouble is non-latching and is cleared when walk test is exited. Walk test is aborted by pressing the Cancel button. It will also be aborted if no circuit activations are detected for one hour. The walk test status is active during walk test. If the walk test is an audible test, the audible walk test status is also set.

If the test is identified as "audible", activation of any input will activate all signals for half a second. Trouble on any input causes the signals to be activated continuously for 5 seconds. After the code is transmitted, the input is then reset (if it is resettable) and then tested again. If it is still in alarm or trouble the code will be re-transmitted.

Zone indicators, including the Smart Relay Module (SRM-312) function normally during the test, displaying the input status when it is activated. Relay (not the Smart Relays) and signal correlations to input circuits are not processed during walk-test. Correlations to system status will still be processed.

All common controls and keys not explicitly required for the walk-test operation are disabled while the walk-test is active. The alarm verification and waterflow retard operation is disabled on inputs during walk-test.

While the walk-test is active the following message is displayed on the screen:

```
--Walk test Active --
Alarm:nnn Trbs :mmm
```

where nnn and mmm is a continuously updated count of the number of alarms and troubles which have been recorded during the test (alarms includes all input circuit types tested).

Selective Output Testing

Walk Test can be operated with only a selection (up to 64) of outputs. To do this, select audible test. The next screen will be:

```
Select all NACs for
the walk test? Y
```

Select "No" by using the right arrow key and the next screen will say:

```
NACs selected
None ...
```

Use the left and right arrow key to move through the outputs you wish to active during walk test.

Note: Each event during the Walk Test is also recorded in the log. Therefore, any event past the 200 count will clear the log and be entered as event 1 and so on.

OPERATION MENU/6. BYPASS

The bypass operation has the following options.

```
-Bypass Menu-
1. Device/Circuit
2. Group
3. Loop
4. List Bypass
5. List Un-Bypass
```

Operation Menu/Bypass/1. Device/Circuit

Individual circuit can be bypassed using this option. The user is prompted for the device's loop# and the device address to be bypassed.

```
Dev Loop # & Addr
Loop :__  DevAddr :___
```

If the device is not bypassed the user is prompted to bypass the circuit.

```
Device not bypassed
Bypass ?Y/N
```

After the confirmation, the device is bypassed and the message appears that the device is bypassed.

```
Device /circuit
Bypassed
```

If the device is already bypassed the user is prompted to un-bypass the circuit.

```
Device now bypassed
Unbypass ?Y/N
```

After the confirmation, the device is un-bypassed and the information message shows that the device is un-bypassed.

```
Device /circuit
Unbypassed
```

Operation Menu/Bypass/2. Groups

Configured bypass groups can be bypassed using this option. The list of all the configured bypass groups is displayed and the user can select which group to bypass.

```
--- Bypass groups--
 1. Bypass Floor A
 2. Bypass Floor B
 3. Bypass Floor C
```

Scroll up/down to select group and press Enter. If the group selected is not bypassed the user is prompted to bypass the group.

```
Group not bypassed
Bypass?  Y/N
```

After the confirmation the group is bypassed and the message appears that the group is bypassed.

```
Group
Bypassed
```

If the group is already bypassed, the user is prompted to un-bypass the group.

```
Group not bypassed
Unbypass? Y/N
```

After the confirmation, the group is un-bypassed and the message is that the group is un-bypassed.

```
Group
Unbypassed
```

Operation Menu/Bypass/3. Loop

The whole loop either conventional or addressable can be bypassed using this option. The user is prompted to enter the loop number to be bypassed.

```
Loop number
Loop :__
```

If the loop is not bypassed the user is prompted to bypass the loop.

```
Loop 0 not bypassed
Bypass ?Y/N
```

After the confirmation, the loop is bypassed and the message is that the loop is bypassed.

```
Loop
Bypassed
```

If the loop is already bypassed, the user is prompted to un-bypass the loop.

```
Loop 0 is bypassed
Unbypass ?Y/N
```

After the confirmation the loop is un-bypassed and the information message is that the loop is un-bypassed.

```
Loop
Unbypassed
```

Operation Menu/Bypass/4. List Bypass

A list of devices may be bypassed using this option. The user is prompted to enter the loop number associated with these devices.

```
Loop number
Loop :__
```

Next enter the address list of devices you wish to bypass. Use the following symbols to enter the address list:

Comma (press key number 1 three times)	Use to separate the addresses of the devices
Dash (press key number 1 two times)	Use dash for interval of consecutive addresses, e.g. 1-7.
Exclamation (press key number 1 four times)	Placed at the end of list to signify that no individual confirmation is required.

```
Enter bypass list...
xxxxxxxxxxxxxx
```

The message displayed if the current address carries no device is as follows:

```
Lp:x Addr:xxx
Empty Address
```

The following message is displayed to bypass.

```
Lp:x Addr:xxx
Bypass? Y/N
```

If the device is already bypassed the message is as follows.

```
Lp:x Addr:xxx
Already Bypassed
```

If the exclamation is not used, then there will be individual confirmation.

```
Device/circuit
bypassed
```

At the end of the bypass operation or if the exclamation is used, the message will be:

```
Done...

```

Operation Menu/Bypass/5. List Unbypass

A list of devices can be bypassed using this option. The user is prompted to enter the loop number to be unbypassed.

```
Loop number
Loop:__
```

Enter the list to unbypass, the last list bypassed will be displayed.

```
Enter bypass list...
xxxxxxxxxxxxxx
```

If the list to be unbypassed is shown, just press Enter to complete the unbypassing. Otherwise, you may unbypass the devices one, two or more at a time.

```
Lp: x Addr:xxx
Un-bypass? Y/N
```

If you are attempting to unbypass items that are already unbypassed you will get an "Already un-bypassed" message.

```
Lp: x Addr:xxx
Already un-bypassed
```

Otherwise, if the exclamation is not used, then there will be individual confirmation.

```
Device/circuit
unbypassed
```

At the end of the un-bypass operation or if the exclamation is used, the message will be:

```
Done...

```

OPERATION MENU/7. AUX DISC

The auxiliary disconnect operation is performed by the following the steps below. If the auxiliary relays are connected the user is prompted to disconnect the relays.

```
Aux relays connected
Disconnect ?Y/N
```

After the confirmation the auxiliary relays are disconnected and the information message is displayed that the auxiliary relays are disconnected.

```
Aux relays
disconnected
```

If the auxiliary relays are already disconnected the user is prompted to reconnect the relays.

```
Aux rly disconnected
Reconnect ?Y/N
```

After the confirmation the auxiliary relays are reconnected and the information message is displayed that the auxiliary relays are reconnected.

```
Aux relays
Reconnected
```

OPERATION MENU/8. TEST DIALER

Special function is provided to test the dialer operation. This function can manually test both the phone line L1 and L2 and also reset the dialer where all the events to be reported in the queue are cleared and the dialer status is reset.

```
---Dialer test ----
1. L#1 manual test
2. L#2 manual test
3. Reset dialer
```

OPERATION MENU/9. AFTER HOURS

This operation allows to manually set the daytime or the night time mode of operation thus over-riding the current daytime or nighttime mode. The user is prompted for confirmation as shown below:

```
Manual night mode
Change ?Y/N
```

After the confirmation the user is prompted to enter which mode to be set.

```
Select mode
1. Daytime
2. Night time
```

After the user selection and information message is displayed that the daytime nighttime mode is updated.

```
Day/night mode
updated
```

OPERATION MENU/10. CLEAR VERIFY COUNT

This operation is used to clear all the verification counts accumulated during the alarm verification process. The user is prompted for confirmation as shown below:

```
Clear all verif
Counters ?Y/N
```

After the confirmation the verification count is cleared and the information message is displayed that the counts are cleared.

```
Verify
Counters cleared
```

OPERATION MENU/11. GND FAULT TEST

This operation displays the system ground fault, positive and negative. Consult Mircom for instructions on how to operate the ground fault test.

OPERATION MENU/12. EXIT

Exit to the main command menu.

Reports

Overview

Reports can be generated in command mode from the reports menu. Reports are shown on the shared LCD display in a special format.

Alarm Log

The alarm log report displays the contents of the alarm event log on the shared display which contains the last 400 of any of the following events:

- activation of any alarm input or common control which activates the common alarm sequence
- activation of system reset
- clearing of the event log (as the first entry)

Each entry contains the time and date of the event and a description of what the event was, for example:

```
Nverf alm ipt
Active        002/016
```

For input circuits the first line shows the programmed message, the second line shows the status of the circuit and the position of the event in the queue along with the total number of events in the queue.

By pressing the INFO key gives the following additional information:

```
Lp:1  Addr:002
Jul 20, 2005 09:25AM
```

The first line show the loop# and the address, the second line shows the date and time when the event has occurred.

Other events are displayed in the same format with information applicable to that event only.

General Event Log

The general event log report displays the contents of the general event log on the shared display which contains the last 400 of any of the following events:

- activations of any input circuits
- restoration of non-latching input circuits
- pre-alarm on any device
- initiation of the alarm verification sequence on a verified alarm input
- any system troubles
- activation of any system common control or any command on the command menu

The report format is similar to the alarm log report.

Current Levels Report

The current levels report displays the current alarm level for analog devices on the specified loop as a percent of alarm as well as its current raw analog reading.

The display shows the loop#, device address, current level and the %alarm in the following format:

```
Lp:1 Addr:001
Levl:0024 Alarm:000%
```

If no analog devices are found on the specified loop(s), a message is displayed to that effect.

Verification Count Report

The verification count report displays the number of times that the alarm verification cycle has been initiated without causing an alarm for all verified device or circuits on the specified loop or loops. If the count is zero, the device is not displayed.

The report shows the loop#, device address and count in the following format:

```
Lp:1 Addr:001
Verify count :000
```

If no verified devices with a non-zero counter are found on the specified loop(s), a message is displayed to that effect.

Verification counters are cleared by the clear verification count command and at initial power-up.

Maintenance Report

The maintenance report displays all detectors on the specified loop or loops that are currently reading dirty or almost dirty. Almost dirty is defined as more than 75% of the dirty level. Dirty detectors are displayed first followed by the almost dirty. The two parts are separated by a sub heading.

The report shows the device address, percentage dirty, device type, and programmed message in the following format:

```
Maint Report
Percent dirty :012%
```

If no dirty or almost dirty devices are found on the specified loop(s), a message is displayed to that effect.

Warranty and Warning Information

WARNING!

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

NOTE TO ALL READERS:

1. **Nature of Warnings.** The within warnings are communicated to the reader out of an abundance of caution and create no legal obligation for Mircom Group of Companies, whatsoever. Without limiting the generality of the foregoing, this document shall NOT be construed as in any way altering the rights and obligations of the parties, governed by the legal documents that apply in any given circumstance.

2. **Application.** The warnings contained in this document apply to all Mircom System and shall be read in conjunction with:

   a. the product manual for the specific Mircom System that applies in given circumstances;

   b. legal documents that apply to the purchase and sale of a Mircom System, which may include the company's standard terms and conditions and warranty statements;

   c. other information about the Mircom System or the parties' rights and obligations as may be application to a given circumstance.

3. **Security and Insurance.** Regardless of its capabilities, no Mircom System is a substitute for property or life insurance. Nor is the system a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation. Building automation systems produced by the Mircom Group of Companies are not to be used as a fire, alarm, or life-safety system.

NOTE TO INSTALLERS:

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

4. **Inadequate Installation.** All Mircom Systems must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. National standards require an inspection and approval to be conducted by the local authority having jurisdiction following the initial installation of the system and following any changes to the system. Such inspections ensure installation has been carried out properly.

5. **Inadequate Testing.** Most problems that would prevent an alarm a Mircom System from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested by the local authority having jurisdiction immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

NOTE TO USERS:

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

6. **Inadequate Testing and Maintenance.** It is imperative that the systems be periodically tested and subjected to preventative maintenance. Best practices and local authority having jurisdiction determine the frequency and type of testing that is required at a minimum. Mircom System may not function properly, and the occurrence of other system failures identified below may not be minimized, if the periodic testing and maintenance of Mircom Systems is not completed with diligence and as required.

7. **Improper Operation.** It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm. A Mircom System may not function as intended during an emergency situation where the user is unable to operate a panic or emergency switch by reason of permanent or temporary physical disability, inability to reach the device in time, unfamiliarity with the correct operation, or related circumstances.

8. **Insufficient Time.** There may be circumstances when a Mircom System will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.

9. **Carelessness or Safety Hazards.** Moreover, smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits or children playing with matches or arson.

10. **Power Failure.** Some Mircom System components require adequate electrical power supply to operate. Examples include: smoke detectors, beacons, HVAC, and lighting controllers. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage Mircom Systems or other electronic equipment. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

11. **Battery Failure.** If the Mircom System or any device connected to the system operates from batteries it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition, and installed correctly. Some Mircom Systems use replaceable batteries, which have a limited life-span. The expected battery life is variable and in part dependent on the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. Moreover, some Mircom Systems do not have a battery monitor that would alert the user in the event that the battery is nearing its end of life. Regular testing and replacements are vital for ensuring that the batteries function as expected, whether or not a device has a low-battery monitor.

12. **Physical Obstructions.** Motion sensors that are part of a Mircom System must be kept clear of any obstacles which impede the sensors' ability to detect movement. Signals being communicated by a Mircom System may not reach the receiver if an item (such as metal, water, or concrete) is placed on or near the radio path. Deliberate jamming or other inadvertent radio signal interference can also negatively affect system operation.

13. **Wireless Devices Placement Proximity.** Moreover all wireless devices must be a minimum and maximum distance away from large metal objects, such as refrigerators. You are required to consult the specific Mircom System manual and application guide for any maximum distances required between devices and suggested placement of wireless devices for optimal functioning.

14. **Failure to Trigger Sensors.** Moreover, Mircom Systems may fail to operate as intended if motion, heat, or smoke sensors are not triggered.

a. Sensors in a fire system may fail to be triggered when the fire is in a chimney, walls, roof, or on the other side of closed doors. Smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building. In this situation the control panel may not alert occupants of a fire.

b. Sensors in a nurse call system may fail to be triggered when movement is occurring outside of the motion sensors' range. For example, if movement is occurring on the other side of closed doors or on another level of the residence or building the motion detector may not be triggered. In this situation the central controller may not register an alarm signal.

15. **Interference with Audible Notification Appliances.** Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners, appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.

16. **Other Impairments.** Alarm notification appliances such as sirens, bells, horns, or strobes may not warn or waken a sleeping occupant if there is an intervening wall or door. It is less likely that the occupants will be alerted or awakened when notification appliances are located on a different level of the residence or premise.

17. **Software Malfunction.** Most Mircom Systems contain software. No warranties are provided as to the software components of any products or stand-alone software products within a Mircom System. For a full statement of the warranties and exclusions and limitations of liability please refer to the company's standard Terms and Conditions and Warranties.

18. **Telephone Lines Malfunction.** Telephone service can cause system failure where telephone lines are relied upon by a Mircom System. Alarms and information coming from a Mircom System may not be transmitted if a phone line is out of service or busy for a certain period of time. Alarms and information may not be transmitted where telephone lines have been compromised by criminal tampering, local construction, storms or earthquakes.

19. **Component Failure.** Although every effort has been made to make this Mircom System as reliable as possible, the system may fail to function as intended due to the failure of a component.

20. **Integrated Products.** Mircom System might not function as intended if it is connected to a non-Mircom product or to a Mircom product that is deemed non-compatible with a particular Mircom System. A list of compatible products can be requested and obtained.

Warranty

Purchase of all Mircom products is governed by:

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

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

https://www.mircom.com/software-license-terms-and-conditions

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