

# ELK-M1XRFEG

## Wireless Receiver and Input Expander

Compatible with many models of GE branded Wireless Sensors,  
including other brands which comply with the GE protocol.  
Refer to page 8 & 9 for listing of known compatible sensors.

# INSTALLATION MANUAL

### IMPORTANT NOTE:

ELK-M1G and M1EZ8 Controls **SHOULD** have application firmware ver. 5.2.0 or higher to be compatible with the M1XRFEG Receiver. Refer to M1Dealer website for update 'flash' files.

The latest version of ElkRP Programming Software is required for programming.

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## FEATURES:

- Adds up to 144 individual wireless zones (sensors/points)
- Operates from the 4 wire RS485 Data Bus
- Multiple Receivers (up to 11) may be connected to a single M1 or M1EZ8 Control for redundancy and greater coverage
- Flash Memory allows field updating of operating Firmware
- Compatible with many models of GE branded Wireless Sensors, including other brands which comply with the GE protocol.

## SPECIFICATIONS:

- Sensitivity: >105 dbm
- Operating Temperature: 0 to +120 degrees F
- Operating Voltage: 12 Volts D.C.
- Current Draw: 25mA
- Indoor Range: 300 to 500 ft. \*\* line of sight

\*\* Laboratory tests have achieved greater distances, however walls and metal objects generally reduce actual operating range.

This device complies with Part 15 of FCC Rules which are designed to provide reasonable protection against such interference in a residential installation. The FCC requires the following statement for your information:

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- \* If using an indoor antenna, have a quality outdoor antenna installed.
- \* Reorient the receiving antenna until interference is induced or eliminated.
- \* Move the receiver away from the security control.
- \* Move the antenna leads away from any wire runs to the security control
- \* Have the device or controller plugged into a different outlet so that it and the receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user or installer may find a booklet titled "Interference Handbook" prepared by the Federal Communications Commission helpful: This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or Users Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

## OVERVIEW

The **"EG"** model of the ELK-M1XRF Wireless RF Receiver (full part #ELKM1XRFEG) allows the ELK-M1 and ELK-M1EZ8 Controls to accept GE 319.5MHz format Wireless Transmitters, including other brand sensors that are compatible with the GE protocol. Refer to the list of compatible transmitters elsewhere in the manual. Regardless of model, an M1XRF receiver attaches to the four (4) wire (keypad) data bus and integrates in much the same way as a hardwired zone expander, with the exception that a single M1XRF can handle up to 144 wireless zones (e.g. transmitter sensors or points). Benefits of operating from the data bus are: 1) The receiver can be installed virtually anywhere in a building up to the maximum distance of the data bus. This provides optimum convenience and coverage. 2) Multiple receivers (up to 11 total) can be connected to a single control providing even greater coverage as well as redundancy. Using multiple receivers it is possible to cover hundreds if not thousands of square feet with a receiver placed in strategic locations.

A strong point of the M1XRF receiver is that all transmitter programming and enrollment data gets stored in the control panel, not in the receiver(s). This provides two advantages: 1) Multiple "redundant" receivers can be deployed in a building and a transmitter only need be enrolled one time. Even portable devices such as Keychain Remotes work perfectly regardless of which receiver picks up the transmission. 2) And should a receiver ever become damaged or need replacement it is not necessary to re-enroll the transmitters. Simply replace the receiver and perform a data bus enrollment of the receiver to the control panel.

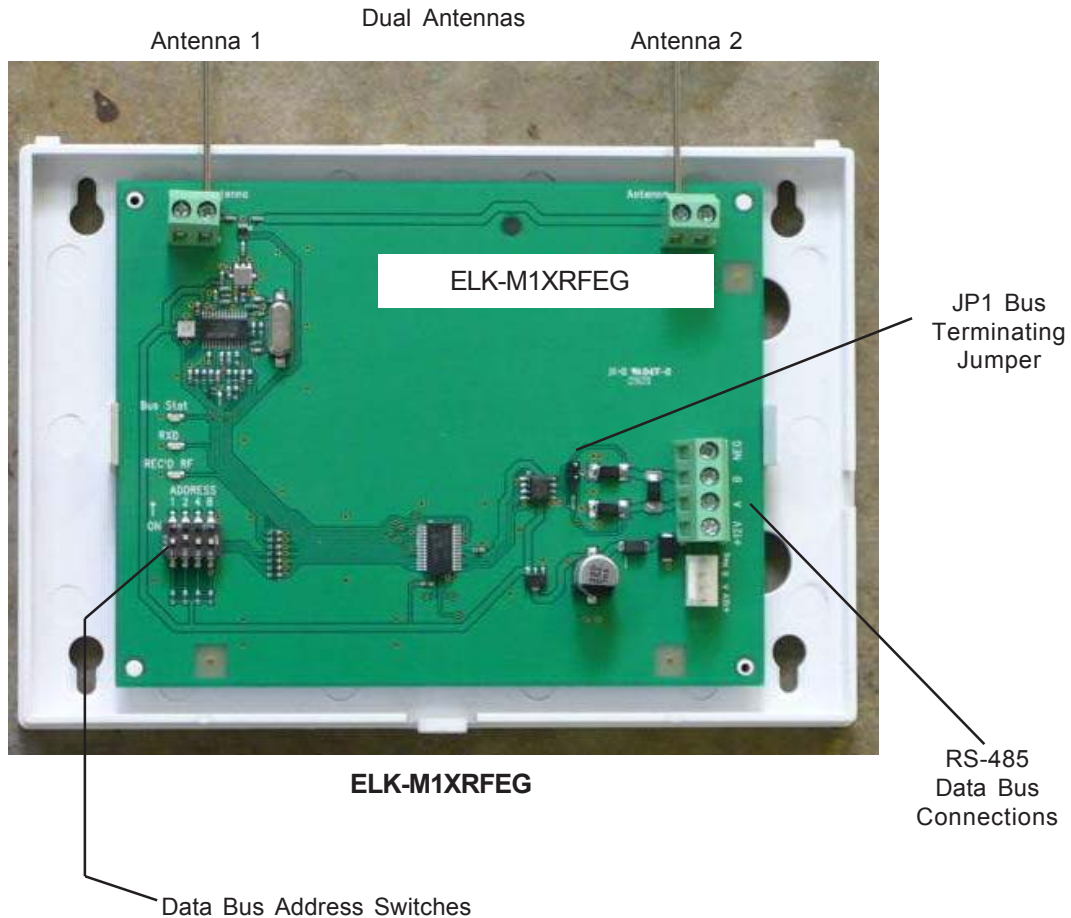
**IMPORTANT: There are several models of Wireless (RF) Receivers built for the Elk-M1 and M1EZ8 controls. The M1XRFEG supports GE 319.5MHz transmitters while the M1XRF2H supports Honeywell (Ademco) transmitters. An older model (M1XRF2G) also supported the GE transmitters, however this model was phased out and replaced by the M1XRFEG part number.**

**THE BRAND OF TRANSMITTERS INSTALLED BE MATCHED TO THE CORRECT RECEIVER.**

**A single M1 Control can accept a mixture of receivers and transmitters. However, extreme care must be exercised to assure that each transmitter brand is within range of its respective receiver model. In other words, the receivers are physically and electronically different and can only receive the transmissions of their particular brand transmitters.**

# General Installation and Setup

**INSTALL UNIT \* SET ADDRESS AND OPTION JUMPERS \* ACTIVATE M1 BUS ENROLLMENT PROCESS**



NOTE: Jumper JP1 makes it convenient to terminate the RS-485 Data Bus if this is the last installed device.

1. **Mounting** - Two (2) #6 x 1/2" screws (not provided), one on each side of the housing should be used for mounting. The receiver connects to the M1's Keypad data bus and may be remotely located up to several thousand feet away from the control. Mounting inside a metal enclosure or on metalized wallpaper is NOT RECOMMENDED! Try and mount at least 10 feet away from any electrical device that generates noise including the M1 Control as electrical noise may reduce the receiver sensitivity. For increased signal coverage or redundancy additional M1XRF Receivers (up to 11 max.) may be connected to the same M1 Controller. See Appendix C.

2. **Wiring Connections** - Before making any wiring connections, turn the power Off on the Control Panel. Connect terminals +12V, A, B, and Neg from the receiver to the M1's Keypad Data Bus (terminals +VKP, Data A, Data B, & Neg).

**NOTE: Refer to the M1 Installation Manual and the M1DBH information in this manual about proper connections of data bus devices with multiple homerun cables.**

### 3. Antenna Installation

The receiver is supplied with two (2) antennas. These should be installed into the top locations marked Antenna. Dual antennas ensure signal diversity which helps eliminate RF dead spots.

**NOTE: Each antenna location has a two (2) position screw terminal block. MAKE SURE to insert and tighten the antennas into the screw terminals marked ANTENNA. Do not use the adjacent screw terminal.**

## Setting the M1XRF Data Bus Address and the Starting Wireless Zone ID

Devices that communicate on the RS-485 4-wire data bus must each have a valid address setting (from 1 to 15) within their device type. Keypads are TYPE 1, Hardwire and Wireless Input expanders are TYPE 2, Output expanders TYPE 3, Serial expanders TYPE 4. The device types allow address numbers to be re-used in each different device type. There are 4 address switches, each with an OFF or ON position (binary value 0 or 1) and decimal equiv. value of (1, 2, 4, or 8). The total decimal value of the "ON" switches determines the data bus address. Set the switches to the desired data bus address by referring to Tables 1-1 and 1-2. A small screwdriver may be helpful. See important information before proceeding to "Data Bus Enrollment".

### **VERY IMPORTANT! PLEASE READ!**

**Due to Hardwire and Wireless expanders sharing the same device type and same bus address range, unintentional data bus "Conflicts" are possible with M1XRF Wireless Receiver(s) and M1XIN Hardwired Expander(s) installed on the same control. These conflicts can be avoided with proper understanding of the issues and careful planning and execution during installation. The important point to remember is that M1XRF Wireless Receivers and M1XIN Zone Expanders share the same data bus addresses. Below are some issues and recommendations to avoid addressing conflicts:**

**M1XIN Expanders:** A single ELK-M1XIN Hardwired Zone Expander (M1XIN) provides 16 hardwired zones. The data bus address SETS THE ID OF THE STARTING ZONE of each 16 zone group. See Table 1-1. If additional M1XINs are installed, each must have a different address (usually the next available) to set the starting zone of the next 16 zone group. I.E., Each data bus address equates to a specific group of 16 zone IDs. Everything works fine as long as there are NO DUPLICATE addresses.

**M1XRF Receivers:** The differences between a ELK-M1XRF Wireless Receiver and a ELK-M1XIN Zone Expander are:

- 1) With only a single (1) M1XRF Receiver it is possible to add up to 144 wireless zones to the control, assigned in groups of 16 at a time. The only stipulation is that in order to have 144 total wireless zones the first group of 16 must begin at zone 17 and the balance of the wireless zones must be sequential through zone 160. Caution! If any hardwired zone expanders are enrolled in the range of zones 17 through 160 then 16 wireless zones will be lost for every hardwired (16 zone) expander.
- 2) It is possible to have multiple M1XRF Wireless Receivers installed for added range and coverage redundancy. The "redundant" receivers can be assigned to any unused data bus address. For this reason the data bus address of an M1XRF Receiver does not actually determine the starting wireless zone number. Even so, for the sake of simplicity, installers are encouraged to set the data bus address of the first M1XRF Receiver (if there are multiple Receivers) to the starting zone ID as depicted in Tables 1-1 and 1-2.

**NOTE: ELK strongly recommends that the starting wireless zone number conforms to the numbering scheme shown in Tables 1-1 and 1-2, even though the actual data bus address of the M1XRF could be address 10 while the first group of 16 wireless zones could be programmed as 17-32. Although there may be some benefits to being able to program the starting zone without regard to the data bus address, the disadvantages are potential zone numbering conflicts when M1XIN Hardwired Zones Expanders exist. For the sake of simplicity, installers are encouraged to set the starting zone ID and the M1XRF data bus address to conform to the conventional settings used by the hardwired zone expanders. Refer to Tables 1-1 and 1-2 on opposite page.**

### **Other important considerations when installing an M1XRF:**

- a) From a system configuration point wireless zones are allocated in minimum blocks of 16 zones. But you are not required to utilize all 16 of the zones.
- b) Care must be taken to ensure that wireless zones NEVER spill over into data bus addresses that are already assigned to or in use by a M1XIN Hardwired Zone Expander and vs. versa,
- c) Regardless of where the wireless zones start we strongly suggest that all additional wireless zones be contiguous and that no M1XIN Hardwired Zone Expanders be installed at data bus addresses associated with those wireless zone numbers. Data Bus Addresses whose zone IDs are effectively "overlapped" by wireless zones are considered "reserved" for wireless use and should not be used by a hardwired zone expander. See Appendix C.
- d) The last wireless zone number can NEVER be assigned higher than zone 160. Put another way, zones 161 through 208 cannot be wireless zones.
- e) The maximum number of wireless zones is 144, therefore the last wireless zone number cannot be greater than 160.

**Example:** You decide to create 64 contiguous wireless zones. And the starting wireless zone ID is set to "17" (associated with data bus address 2). That would mean that zones 17 to 31, 32 to 48, 49 to 64, and 65 to 80 are going to be wireless zones. Based on Tables 1-1 and 1-2 it is easy to see that zones 17 to 31 are associated with data bus address 2 and zones 32 to 48, 49 to 64, and 65 to 80 are associated with data bus addresses 3, 4, and 5 respectively. As a result, addresses 3,4, and 5 ARE NOT AVAILABLE for use by M1XIN Expanders because the wireless zones are overlapping these addresses.

**NOTE: Consider whether the system may ever required more wireless or hardwired zones. If the answer is yes it would be good to plan the data bus address assignments in such a way that future growth is possible without having to default the control or totally re-arrange the addresses at a future date.**

### M1XIN Zone Expanders

| Data Bus Address | Starting and Ending Zone Numbers | Switch Settings |     |     |     |
|------------------|----------------------------------|-----------------|-----|-----|-----|
|                  |                                  | S1              | S2  | S3  | S4  |
| 2                | Zones 17 - 32                    | Off             | On  | Off | Off |
| 3                | Zones 33 - 48                    | On              | On  | Off | Off |
| 4                | Zones 49 - 64                    | Off             | Off | On  | Off |
| 5                | Zones 65 - 80                    | On              | Off | On  | Off |
| 6                | Zones 81 - 96                    | Off             | On  | On  | Off |
| 7                | Zones 97 - 112                   | On              | On  | On  | Off |
| 8                | Zones 113 - 128                  | Off             | Off | Off | On  |
| 9                | Zones 129 - 144                  | On              | Off | Off | On  |
| 10               | Zones 145 - 160                  | Off             | On  | Off | On  |
| 11               | Zones 161 - 176                  | On              | On  | Off | On  |
| 12               | Zones 177 - 192                  | Off             | Off | On  | On  |
| 13               | Zones 193 - 208                  | On              | Off | On  | On  |
| 14               | <i>not valid</i>                 | -               | -   | -   | -   |
| 15               | <i>not valid</i>                 | -               | -   | -   | -   |

Table 1-1

### M1XRF Wireless Receivers

| Data Bus Address | Suggested Wireless "Starting Point" | Switch Settings |     |     |     |
|------------------|-------------------------------------|-----------------|-----|-----|-----|
|                  |                                     | S1              | S2  | S3  | S4  |
| 2                | Zone 17                             | Off             | On  | Off | Off |
| 3                | Zone 33                             | On              | On  | Off | Off |
| 4                | Zone 49                             | Off             | Off | On  | Off |
| 5                | Zone 65                             | On              | Off | On  | Off |
| 6                | Zone 81                             | Off             | On  | On  | Off |
| 7                | Zone 97                             | On              | On  | On  | Off |
| 8                | Zone 113                            | Off             | Off | Off | On  |
| 9                | Zone 129                            | On              | Off | Off | On  |
| 10               | Zone 145                            | Off             | On  | Off | On  |
| 11               | <i>not valid</i>                    | -               | -   | -   | -   |
| 12               | <i>not valid</i>                    | -               | -   | -   | -   |
| 13               | <i>not valid</i>                    | -               | -   | -   | -   |
| 14               | <i>not valid</i>                    | -               | -   | -   | -   |
| 15               | <i>not valid</i>                    | -               | -   | -   | -   |

Table 1-2

Other Jumper Settings:  
  
JP1 - Used to engage a 120 Ohm resistor for terminating the RS-485 Data Bus. See Data bus wiring instructions before use.

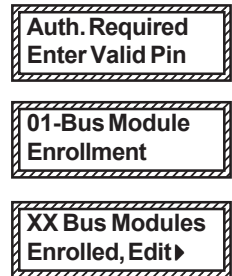
### Data Bus Address Switches

#### Data Bus Enrollment:

Once the address is set and the M1XRF is powered up it will be necessary to manually ENROLL the device so that the M1 Control knows it is present. This is accomplished either from keypad programming "Menu 1 - Bus Module Enrollment" or from the ElkRP Remote Programming Software.

(The steps below require an M1 LCD Keypad)

1. Press the **ELK** key, then press **9** (or scroll up) to display **9 - Installation Programming**. Press the **RIGHT** arrow key to select this menu. The Installer Program Code (PIN) must be entered to access this menu.
2. Enter the Installer Program Code. (The default code is 172839)
3. The first Installer Programming menu displayed will be "Bus Module Enrollment"
4. Press the **RIGHT** arrow key to select this menu. "Enrolling Bus Modules" will display
5. The control will transmit an enrollment message to all data bus devices, followed by a display showing the total Bus Modules that are enrolled. To view the enrolled devices and/or remove a device press the **RIGHT** arrow key next to the word **Edit**.
6. Press the **\*** or **Exit** keys to exit Installer Programming.



# Operation

## Handling Received Transmissions:

Operationally when a transmitter signal is received by the M1XRF it quickly scans through a filter of valid transmitter sensors to determine if that sensor has been enrolled into the M1 or EZ8 control. If that transmitter is valid then its data will be sent to the M1 Controller for additional processing. The M1 Controller automatically informs any additional M1XRF Receivers that it has received this transmitter, just in case they also heard the same transmission. This handling procedure does two things. It eliminates duplicate signal processing while allowing multiple receivers for improved range and reliability. It also helps prevent unwanted or neighboring transmitters belonging to another system from being duplicated on the data bus.

## Diagnostic LEDs:

Three (3) Status LEDs provide valuable information as to the operation of the M1XRF:

BUS STAT "STATUS" **RED** LED - This displays multiple conditions as outlined below:

OFF = No Power to the M1XRF

ON Solid = The M1XRF is Not Enrolled or the Microprocessor is not functioning.

BLINKING = 2 different blink rates:

- Normal Operating mode - indicated by a slow blink of once per second with a matching Off time.
- Bootloader mode - indicated by a more rapid "two" blinks per second with a very brief Off time.

This occurs when the unit is awaiting a flash download of its application firmware. Until the firmware application has been successfully downloaded the M1XRF is non-functional as a wireless receiver.

RXD "VALID" **GREEN** LED - This LED will momentarily turn on when the M1XRF receives a valid transmitter and is in the process of sending the signal packet back to the M1 Controller. As soon as the packet is acknowledged by the M1 Controller the LED will turn Off.

REC'D "RF" **YELLOW** LED - This LED blinks whenever and RF transmitter signal is detected.

## Requirements for Programming the Receiver and Enrolling Transmitters:

The Receiver and wireless transmitters may be programmed using either the M1 Keypad Installer Programming or the ElkRP Remote Programming software. The following pages document the options and steps for programming from the keypad.

## Transmitter (RF) Level Checking [Signal Strength]:

Wireless transmitters send multiple repeats "or rounds" of their data transmission packets to compensate for interference, weak signal, etc. The repeated packets are useful to the receiver in providing level checking [signal strength, walk test, etc.] as a reference of the acceptable reliability of the sensor and its mounting orientation and/or location.


When the M1XRF receiver first hears a wireless transmission, it tracks and totals the number of received data packets over the next 10 seconds. During keypad enrollment of a new transmitter, the total number of received packets is voice announced by the M1 immediately following the successful enrollment. The number is also voice announced during the Keypad Walk Test of a Wireless zone. For Example: If all data packets from a sensor (8 out of a total of 8) were properly detected you should hear "Sensor X, Level 8". This would indicate the highest signal strength for this particular Intrusion Sensor.

In Elk's opinion, the minimum acceptable level of any wireless sensor would generally be a level 4. This is based on the fact that the M1XRF Receiver REQUIRES a minimum of 2 repeated data packets in order to qualify an event as a valid transmission. Level 4 is just a rule of thumb based on doubling the minimum required number of repeated data packets. It is the responsibility of the installation company and their technicians to adopt their own policy of what should constitute a minimum acceptable level [signal strength] of any wireless transmitter.

**IMPORTANT:** Because the M1XRF counts all valid data packets received over a 10 second time window, it is possible to occasionally hear a number that is much higher than the number you might expect to hear from a particular sensor. This can occur when multiple transmitters on a site happen to transmit at the same time as the one being tested. Based on the type of RF sensor being tested, if the announced value is too high or just sounds wrong or inconsistent, it is recommended that you retest or retrigger that sensor to get a more correct data packet decode level.

# List of supported Transmitters - GE "UTC" Format (319.5MHz) & Brand








The below listed Transmitters have been tested and found to be compatible with the ELK-M1XRFEG Receiver. Elk makes no guarantee for any other transmitter model(s). All information shown below is based on the best available data provided by the transmitter manufacturer. Information subject to change without notice.

| Device   | Part Number(s) & Description   |
|--|--|
|    | <p><b>Smoke Detector - GE part # 60-848-02-95, or equivalent</b><br/>                     Enroll Process - For units with tamper supervision activate the tamper, otherwise press the front Test button which will transmit a violation (alarm)<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) For units with tamper supervision set this option to YES. For units without tamper supervision set this option to NO.</p>  |
|    | <p><b>Single Button Wrist/Pendant Panic - GE part # 60-906-95, or equivalent</b><br/>                     Enroll Process - Press Main Button &gt;OPTIONS - None</p>  |
|    | <p><b>Single Button Pendant Panic - GE part # 60-578-10-95, or equivalent</b><br/>                     Enroll Process - Press Main Button &gt;OPTIONS - None</p>   |
|    | <p><b>PIR Motion Detector - GE part # 60-880-95, or equivalent</b><br/>                     Enroll Process - Remove back cover / activate tamper switch<br/>                     Note: Transmitter does not send restores. Control automatically assumes restoral 8 seconds after violation. &gt;OPTIONS - None</p>  |
|    | <p><b>PIR Motion Detector - GE part # 60-703-95, or equivalent</b><br/>                     Enroll Process - Remove back cover / activate tamper switch<br/>                     Note: Transmitter does not send restores. Control automatically assumes restoral 8 seconds after violation. &gt;OPTIONS - None</p>  |
|    | <p><b>PIR Motion Detector - GE part # 60-511-01-95, or equivalent</b><br/>                     Enroll Process - Remove back cover / activate tamper switch<br/>                     Note: Transmitter does not send restores. Control automatically assumes restoral 8 seconds after violation. &gt;OPTIONS - None</p>   |
|    | <p><b>Door And Window Transmitter - GE part #'s 60-362-10-319.5, 60-641-95, or equivalent</b><br/>                     Enroll Process - Press Test Button or Tamper Switch<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) set to YES to disable internal Reed Switch. NO leaves the internal switch active.<br/>                     &gt;OPTIONS - WZnxxx 04 (Option 2) set to YES to use a N/C Switch on External Contacts, NO to use a N/O Switch.</p>  |
|    | <p><b>Door And Window Transmitter - GE part # 60-499-10-319.5, or equivalent</b><br/>                     Enroll Process - Press Test Button or Tamper Switch<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) set to YES to disable internal Reed Switch. NO leaves the internal switch active.<br/>                     &gt;OPTIONS - WZnxxx 04 (Option 2) set to YES to use a N/C Switch on External Contacts, NO to use a N/O Switch.</p>   |
|  | <p><b>Door And Window Transmitter - GE part # 60-688-95, or equivalent</b><br/>                     Enroll Process - Press Test Button or Tamper Switch<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) set to YES to disable internal Reed Switch. NO leaves the internal switch active.<br/>                     &gt;OPTIONS - WZnxxx 04 (Option 2) set to YES to use a N/C Switch on External Contacts, NO to use a N/O Switch.</p>   |
|  | <p><b>Door And Window Transmitter - GE part # 60-741-95, or equivalent</b><br/>                     Enroll Process - Twist end cap using a coin or screwdriver 1/8" CCW<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) set to YES to disable internal Reed Switch. NO leaves the internal switch active.<br/>                     &gt;OPTIONS - WZnxxx 04 (Option 2) set to YES to use a N/C Switch on External Contacts, NO to use a N/O Switch.</p>   |
|  | <p><b>Heat 'Rate Of Rise' Transmitter - GE part # 60-460-319.5, or equivalent</b><br/>                     Enroll Process - Press Test Button located on circuit board inside the unit next to the battery &gt;OPTIONS - None</p>  |
|  | <p><b>Glass Break Transmitter - GE part # 60-873-95, 60-834-95, or equivalent</b><br/>                     Enroll Process - Activate Tamper Switch &gt;OPTIONS - WZnxxx 04 (Option 2) MUST be set to YES</p>   |
|  | <p><b>Shock Sensor - GE part # 60-886-95, or equivalent</b><br/>                     Enroll Process - Press Test Button &gt;OPTIONS - WZnxxx 04 (Option 2) MUST be set to YES</p>  |
|  | <p><b>Single Button Panic Transmitter - GE Part # 60-458-10-319.5, or equivalent</b><br/>                     Enroll Process - Press Button &gt;OPTIONS - None</p>   |
|  | <p><b>Glass Guard Transmitter - GE Part # 6046210319.5</b><br/>                     Enroll Process - Press Button &gt;OPTIONS - None</p>   |
|  | <p><b>Freeze Sensor Transmitter - GE Part # 60-504-10-95R, or equivalent</b><br/>                     Enroll Process - Press Button &gt;OPTIONS - None</p>   |
|  | <p><b>Four Button Keyfob Transmitter - GE Part # 60-606-319.5, or equivalent</b><br/>                     Enroll Process - Press and hold the Lock and Unlock Buttons (buttons 1 &amp; 2) together at the same time.<br/>                     &gt;OPTIONS – Set "WZnxxx 03" (Option 1) to YES to swap the action of the Light button from 3 to 5. Set "WZnxxx 04" (Option 2) to YES to swap the action of the Asterisk button from 4 to 6.<br/>                     Note: Pressing Lock and Unlock together triggers the event assigned to Key 7. Pressing the Light and Asterisk together triggers the event assigned to Key 8.</p> |

\*\* The first digit of the transmitter's ID code should begin with this alphanumeric character. It is the transmitter "type" or ID and is used internally by the receiver to determine what options or setup pertain to the transmitter.



# List of compatible Transmitters (319.5MHz) made by Resolution Products

| Device  | Part Number(s) & Description  |
|---|---|
|    | <p><b>Four Button Keyfob Transmitter - Resolution Products Part # RE100</b><br/>                     Enroll Process - Press and hold the Lock and Unlock Buttons (buttons 1 &amp; 2) together at the same time.<br/>                     &gt;OPTIONS - Set "WZnxxx 03" (Option 1) to YES to swap the action of the Light button from 3 to 5. Set "WZnxxx 04" (Option 2) to YES to swap the action of the Asterisk button from 4 to 6.<br/>                     Note: Pressing Lock and Unlock together triggers the event assigned to Key 7. Pressing the Light and Asterisk together triggers the event assigned to Key 8.</p> |
|    | <p><b>Door And Window Transmitter - Resolution Products Part # RE101</b><br/>                     Enroll Process - Press Test Button or Tamper Switch<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) set to YES to disable internal Reed Switch. NO leaves the internal switch active.<br/>                     &gt;OPTIONS - WZnxxx 04 (Option 2) set to YES to use a N/C Switch on External Contacts, NO to use a N/O Switch.</p>  |
|    | <p><b>Pencil Door And Window Transmitter - Resolution Products Part # RE102</b><br/>                     Enroll Process - Press Test Button or Tamper Switch<br/>                     &gt;OPTIONS - WZnxxx 03 (Option 1) set to YES to disable internal Reed Switch. NO leaves the internal switch active.<br/>                     &gt;OPTIONS - WZnxxx 04 (Option 2) set to YES to use a N/C Switch on External Contacts, NO to use a N/O Switch.<br/>                     Enroll Process - Press Main Button</p>   |
|    | <p><b>Wrist Panic Transmitter - Resolution Products Part # RE103</b><br/>                     Enroll Process - Press Main Button &gt;OPTIONS - None</p>   |
|    | <p><b>Driveway Motion Detector - Resolution Products Part # RE104</b><br/>                     Enroll Process - Press Test Button or Tamper Switch &gt;OPTIONS - None</p>   |
|   | <p><b>Temperature Range Detector - Resolution Products Part # RE105</b><br/>                     Enroll Process - Press Test Button or Tamper Switch &gt;OPTIONS - None</p>   |
|  | <p><b>Tilt Sensor - Resolution Products Part # RE106</b><br/>                     Enroll Process - Press Test Button or Tamper Switch &gt;OPTIONS - None</p>  |
|  | <p><b>PIR Motion Detector - Resolution Products Part # RE110P</b><br/>                     Enroll Process - Remove back cover / activate tamper switch<br/>                     Note: Transmitter does not send restores. Control automatically assumes restoral 8 seconds after violation. &gt;OPTIONS - None</p>  |

# Programming via Keypad

From the keypad enter the Installer Level Programming mode. Press ELK, 9 > (enter installer code).  
 Navigate to the Wireless Setup - Menu 14 and press the RIGHT arrow key to select.

**14 - Wireless Setup** ▶

There are four (4) wireless setup submenus: 1-Receiver Options, 2-Xmitter Options, 3-Xmitter Enroll, and 4-Keyfob Event Definitions. Use the UP or DOWN arrow keys to locate the desired submenu, then press the right arrow key to select.

## Wireless Submenu

### Description

**1:Rec Sel ◀ Prg▶**  
**Receiver Options**

This submenu is for Receiver options. To select this menu press the RIGHT arrow key, or press the Up or Down arrow keys to scroll the submenus.

**R03:=024 Hours ▶**  
**Reg. Supervision**

Rec. Option R03 is the time value for zones programmed as Supervisory Type 1 or "Non-Fire" transmitters (see Xmit Transmitter Opt 02 below). The range is 001 to 255 hours. If a Type 1 sensor fails to check-in prior to the expiration of this time it is considered "missing". Factory default setting is 024 hours. NOTE: A value less than 4 hours is NOT RECOMMENDED!

**R04:=004 Hours ▶**  
**Fire Supervision**

Rec. Option R04 is the time value for zones programmed as Supervisory Type 2 or "Fire" transmitters (see Xmit Transmitter Opt 02 below). The range is 001 to 255 hours. If a Type 2 sensor fails to check-in prior to the expiration of this time it is considered "missing". Factory default setting is 004 hours. NOTE: A value less than 4 hours is NOT RECOMMENDED!

**2:Xmit Sel ◀ Prg▶**  
**Transmitter Opt ▶**

This submenu is for specific transmitter options. However, some options are not applicable to this model of the M1XRF. To select this menu press the RIGHT arrow key, or press the Up or Down arrow keys to scroll the submenus.

**WZn017:Sel ◀ Prg▶**  
**Wireless Zone**

Use the UP and DOWN arrow keys to locate a particular wireless transmitter. Press the RIGHT arrow key to select and program the displayed transmitter.

**WZn017 01: = No ▶**  
**Enable Transmitt**

Displays whether a transmitter is enabled or disabled. This option CANNOT be used to add a new device, but it can be used to temporarily suspend an already enrolled device. The enroll process must be used to add a new transmitter, after which this location will be set to Yes.

**WZn017 02: = 0 ▶**  
**Supervision Type**

Selects the supervision "Type" for each transmitter. Type 0=Non-Supervised (Keyfobs or devices that may leave the premises), Type 1=Normal Supervision (Burglar Sensors), Type 3=HI Supervision (Fire Sensors). See receiver selections R02 and R03 for supervision time values. Valid values are: 0, 1, or 3 Factory default setting is 1 (Normal Supervision).

**WZn017 03: = No ▶**  
**Enable Option 1**

Option for certain types of Transmitters. Example: For keyfob transmitters setting this option to Yes converts buttons 1 to 4 to appear instead as buttons 5 to 6. Default is No. **See list of compatible Transmitters to determine which (if any) transmitters use this option.**

**WZn017 04: = No ▶**  
**Enable Option 2**

Option for certain types of Transmitters. Example: For transmitters with Ext. contact terminals setting this option to Yes permits Open Circuit [N/O] switches. If set to No then only Closed Circuit [N/C] switches may be connected. Default is No. **See list of compatible Transmitters to determine which (if any) transmitters use this option.**

**WZn017 05: = 001 ▶**  
**Keyfob User ID**

Used to program the User ID that is logged when a Keychain Remote transmitter assigned to this zone is used to arm or disarm. Valid range is 001 to 255. Numbers 001 to 199 mirror keypad user codes. Note: Open/Close reports may be programmed for every User code.

**WZn017 06: = No ▶**  
**PIR Auto Restore**

Not currently used. FYI: To conserve battery most Wireless PIRs transmit alarms only, no restorals. Therefore the panel has to take for granted a restoral condition after a small time delay. Wireless PIRs also conserve battery by permitting only 1 detect and transmission in a timed cycle, and are virtually dead until the time cycle expires. For this reason Wireless PIRs are not very useful or practical for automation or occupancy detection applications.

WZn017 shown as an example only!

< continued on next page >

3:Learn Sel◀ Prg▶  
Wireless Transmtr

This submenu is used for manually enrolling transmitters. To select this menu press the RIGHT arrow key, or press the Up or Down arrow keys to scroll submenus.

WZone = 017 HW ◀  
TransmtrToLrn ▶

Select zone for enrolling a new transmitter by entering the three (3) digit zone number OR by scrolling to the zone number using the UP and DOWN arrow keys. NOTE: If a transmitter is already enrolled for this zone the display will resemble 3c below. Otherwise, it will display "TransmtrToLrn".

Press the RIGHT arrow key to select and program that zone.

WZone = 017 Push  
TransmitterButton

This message will display and the M1 will speak: "Press Transmitter Button for Zone XXX", *UNLESS a transmitter is already enrolled (see below)*. Proceed to the transmitter and execute the enroll process. I.E. Press the tamper button, etc. The keypad will chime and the M1 will speak: "[Zone Name] Enrollment" if successful. It will also speak a number indicating the relative strength of the last transmission. Refer to section titled "Transmitter Level Checking."

WZone = xxx  
Enrolled ABCDE1

This display shows the zone number and ID of the enrolled transmitter. NOTE: After a new transmitter is enrolled the control automatically advances to the next zone number and the M1 speaks "Press Transmitter Button for Zone XXX". This permits rapid enrollment of additional transmitters in sequential order. When transmitter enrollment is complete press the ELK key twice to exit the enrollment and return to the other menus.

IMPORTANT! If it becomes necessary to delete or replace an existing transmitter you must use the transmitter option "WZnxxx 01" and select "No" to disable the existing transmitter. Once a zone is selected there are 2 ways to enroll a new transmitter.

WZone = 17 shown as example only!

4:KeyfobSel◀ Prg▶  
Event Definition

This menu is used to program the operation or "action" that a keyfob button will perform. A four (4) button keyfob can be assigned up to six (6) separate operations as explained below. To select this menu press the RIGHT arrow key.

Key=1 Evt=0000▶  
[name of event]

Press the UP or DOWN arrow keys to select a key (1 to 8). There are 8 possible keys but only 6 of them can be used. The definition or operation is programmed using a four (4) digit event code derived from the Zone Definitions table located in the M1 Installation Manual. The range is 0000 to 0030 See M1 Installer Manual, Appendix A, Event Codes.

Key=2 Evt=0000▶  
[name of event]

Each of the four (4) buttons on a Keyfob has a printed symbol and the M1 programming has the following default event (operation) assigned to these buttons:

Key=3 Evt=0000▶  
[name of event]

| Key # / (ICON)   | M1 Default Value | Operation                         |
|------------------|------------------|-----------------------------------|
| Key 1 / Lock     | Event=0027       | KeyMomAway (Arm the Control)      |
| Key 2 / Unlock   | Event=0029       | KeyMomDisarm (Disarm the Control) |
| Key 3 / Light    | Event=0000       | "No default function"             |
| Key 4 / Asterisk | Event=0000       | "No default function"             |

Key=4 Evt=0000▶  
[name of event]

#### ALTERNATE KEY FUNCTIONS

The operation of the Light and Asterisk symbol buttons can be altered by selection of the transmitter option "WZnxxx 03" and "WZnxxx 04". Refer to the previous page.

Key=5 Evt=0000▶  
[name of event]

Example of a keyfob transmitter enrolled at Zn017:

Setting WZn017 03: {Option1} to NO makes the Light button trigger the event assigned to Key=3. Setting WZn017 03: {Option1} to YES makes the Light button trigger the event assigned to Key=5 instead. Effectively swaps Key 3 for Key 5.

Key=6 Evt=0000▶  
[name of event]

Setting WZn017 04: {Option2} to NO makes the Asterisk button trigger the event assigned to Key=4. Setting WZn017 04: {Option2} to YES makes the Asterisk button trigger the event assigned to Key=6 instead. Effectively swaps Key 4 for Key 6.

Key=7 Evt=0000▶  
[name of event]

#### DOUBLE KEY PRESSES

Pressing the Lock and Unlock buttons together momentarily will trigger the event assigned to Key 7. The M1 Default Event Value is "0000" or "No default function".

Key=8 Evt=0000▶  
[name of event]

Pressing the Light and Asterisk buttons together momentarily will trigger the event assigned to Key 8. The M1 Default Event Value is "0000" or "No default function".

# Appendix A - Data Bus Selection Tables

These tables are intended to help visualize how the Wireless Zones and Hardwired Zones share the data bus address assignments. They should help with the setting of a starting zone ID and data bus address(s) to obtain the total and best mix of wireless and hardwired zones. At a minimum, the left column shows the total "max." wireless zones that may be obtained based on the starting zone ID and data bus addresses chosen.

1. Each table has a bolded column showing the 1st wireless zone ID at a particular value (associated with a data bus address).

**NOTE: The total (max.) number of wireless zones is decreased by 16 zones for any hardwired expanders installed or enrolled in the range of zones 17 through 160. This is because only zones 17 through 160 can be used for wireless.**

2. Decide how many "total" wireless zones might be required for the job. This narrow down which table to concentrate on.

3. Consider existing or future M1XIN hardwired zone expanders. The wireless starting zone ID is critical if you want all wireless zones to be sequential with no hardwired zones interspersed between them. The following are some suggested guidelines:

- If the job needs 16 hardwired zones or less with no plans for expansion then start the first wireless at zone 17 (associated with data bus address 2). This leaves the most room for future wireless expansion all the way up to zone 160.
- If the job needs lots of hardwired zones and only a handful of wireless zones consider starting the M1XRF at a higher address, leaving room for future hardwired expansion at the lower addresses.

4. Select any table below and start from the left column by choosing the total number of wireless zones required. Follow the row of cells across to the bold column displaying the starting zone ID and associated data bus address where you wish to begin.

- Cells marked with " \* \* " indicate bus addresses "reserved" exclusively for wireless zones. However, any of these addresses may also be used for a redundant M1XRF Receiver. Redundant Receivers provide additional range and coverage for extremely large or difficult buildings. See Appendix C regarding Redundant Receivers.
- Cells marked "RRF" indicate bus addresses where ONLY a redundant M1XRF Receiver can be installed.
- Cells marked "H or RRF" indicate bus addresses where either a M1XIN Hardwired Expander OR a redundant M1XRF Receiver can be installed.

**NOTE: An M1XRF installed for redundancy does not increase the number of wireless zones, it only increases range and/or coverage.**

| Total Wireless Zones (max.) | Starting Zn ID #17<br>Data bus Addr 2<br>Zn 17-32 | No RF Zones Here |                 |                 |                 |                 |                 |                 |                  |                  |                  |                  |
|-----------------------------|---|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
|                             |   | Data Bus Addr 3  | Data Bus Addr 4 | Data Bus Addr 5 | Data Bus Addr 6 | Data Bus Addr 7 | Data Bus Addr 8 | Data Bus Addr 9 | Data Bus Addr 10 | Data Bus Addr 11 | Data Bus Addr 12 | Data Bus Addr 13 |
|                             |   | Zn 33 - 48       | Zn 49 - 64      | Zn 65 - 80      | Zn 81 - 96      | Zn 97 - 112     | Zn 113-128      | Zn 129-144      | Zn 145-160       | Zn 161-176       | Zn 177-192       | Zn 193-208       |
| 16                          | <b>M1XRF</b>                                      | H or RRF         | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 32                          |   | **               | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 48                          |   | **               | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 64                          |   | **               | **              | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 80                          |   | **               | **              | **              | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 96                          |   | **               | **              | **              | **              | **              | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 112                         |   | **               | **              | **              | **              | **              | **              | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 128                         |   | **               | **              | **              | **              | **              | **              | **              | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 144                         |   | **               | **              | **              | **              | **              | **              | **              | **               | H or RRF         | H or RRF         | H or RRF         |

| Total Wireless Zones (max.) | Data Bus Addr 2<br>Zn 17 - 32 | Starting Zn ID #33<br>Data bus Addr 3<br>Zn 33-48 | No RF Zones Here |                 |                 |                 |                 |                 |                  |                  |                  |                  |
|-----------------------------|-------------------------------|---|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
|                             |                               |   | Data Bus Addr 4  | Data Bus Addr 5 | Data Bus Addr 6 | Data Bus Addr 7 | Data Bus Addr 8 | Data Bus Addr 9 | Data Bus Addr 10 | Data Bus Addr 11 | Data Bus Addr 12 | Data Bus Addr 13 |
|                             |                               |   | Zn 49 - 64       | Zn 65 - 80      | Zn 81 - 96      | Zn 97 - 112     | Zn 113-128      | Zn 129-144      | Zn 145-160       | Zn 161-176       | Zn 177-192       | Zn 193-208       |
| 16                          | H or RRF                      | <b>M1XRF</b>                                      | H or RRF         | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 32                          | H or RRF                      |   | **               | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 48                          | H or RRF                      |   | **               | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 64                          | H or RRF                      |   | **               | **              | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 80                          | H or RRF                      |   | **               | **              | **              | **              | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 96                          | H or RRF                      |   | **               | **              | **              | **              | **              | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 112                         | H or RRF                      |   | **               | **              | **              | **              | **              | **              | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 128                         | H or RRF                      |   | **               | **              | **              | **              | **              | **              | **               | H or RRF         | H or RRF         | H or RRF         |

| Total Wireless Zones (max.) | Data Bus Addr 2<br>Zn 17 - 32 | Data Bus Addr 3<br>Zn 33 - 48 | Starting Zn ID #49<br>Data Bus Addr 4<br>Zn 49 - 64 | No RF Zones Here |                 |                 |                 |                 |                  |                  |                  |                  |
|-----------------------------|-------------------------------|-------------------------------|---|------------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
|                             |                               |                               |   | Data Bus Addr 5  | Data Bus Addr 6 | Data Bus Addr 7 | Data Bus Addr 8 | Data Bus Addr 9 | Data Bus Addr 10 | Data Bus Addr 11 | Data Bus Addr 12 | Data Bus Addr 13 |
|                             |                               |                               |   | Zn 65 - 80       | Zn 81 - 96      | Zn 97 - 112     | Zn 113-128      | Zn 129-144      | Zn 145-160       | Zn 161-176       | Zn 177-192       | Zn 193-208       |
| 16                          | H or RRF                      | H or RRF                      | <b>M1XRF</b>  | H or RRF         | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 32                          | H or RRF                      | H or RRF                      |   | **               | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 48                          | H or RRF                      | H or RRF                      |   | **               | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 64                          | H or RRF                      | H or RRF                      |   | **               | **              | **              | H or RRF        | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 80                          | H or RRF                      | H or RRF                      |   | **               | **              | **              | **              | H or RRF        | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 96                          | H or RRF                      | H or RRF                      |   | **               | **              | **              | **              | **              | H or RRF         | H or RRF         | H or RRF         | H or RRF         |
| 112                         | H or RRF                      | H or RRF                      |   | **               | **              | **              | **              | **              | **               | H or RRF         | H or RRF         | H or RRF         |

Cells marked " \* \* " indicate a **Reserved Address** which can only be used for wireless zones.

Cells marked " RRF " indicate bus addresses where ONLY a redundant M1XRF Receiver can be installed.

Cells marked " H or RRF " indicate bus addresses where either a M1XIN Hardwired Expander OR a redundant M1XRF Receiver can be installed.

## Appendix A - Data Bus Selection Tables (cont'd)

| Total Wireless Zones (max.) | Data Bus Addr 2 | Data Bus Addr 3 | Data Bus Addr 4 | Starting Zn ID #65 Data Bus Addr 5 Zn 65 - 80 | Data Bus Addr 6 | Data Bus Addr 7 | Data Bus Addr 8 | Data Bus Addr 9 | Data Bus Addr 10 | No RF Zones Here            |                             |                             |          |
|-----------------------------|-----------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|-----------------|------------------|-----------------------------|-----------------------------|-----------------------------|----------|
|                             | Zn 17 -32       | Zn 33 - 48      | Zn 49 - 64      |   | Zn 81 - 96      | Zn 97 - 112     | Zn 113-128      | Zn 129-144      | Zn 145-160       | Data Bus Addr 11 Zn 161-176 | Data Bus Addr 12 Zn 177-192 | Data Bus Addr 13 Zn 193-208 |          |
| 16                          | H or RRF        | H or RRF        | H or RRF        | <b>M1XRF</b>                                  | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    |          |
| 32                          | H or RRF        | H or RRF        | H or RRF        |   | **              | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 48                          | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | H or RRF        | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 64                          | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | **              | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 80                          | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | **              | **              | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 96                          | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | **              | **              | **               | **                          | H or RRF                    | H or RRF                    | H or RRF |

| Total Wireless Zones (max.) | Data Bus Addr 2 | Data Bus Addr 3 | Data Bus Addr 4 | Data Bus Addr 5 | Starting Zn ID #81 Data Bus Addr 6 Zn 81 - 96 | Data Bus Addr 7 | Data Bus Addr 8 | Data Bus Addr 9 | Data Bus Addr 10 | No RF Zones Here            |                             |                             |          |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|------------------|-----------------------------|-----------------------------|-----------------------------|----------|
|                             | Zn 17 -32       | Zn 33 - 48      | Zn 49 - 64      | Zn 65 - 80      |   | Zn 97 - 112     | Zn 113-128      | Zn 129-144      | Zn 145-160       | Data Bus Addr 11 Zn 161-176 | Data Bus Addr 12 Zn 177-192 | Data Bus Addr 13 Zn 193-208 |          |
| 16                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | <b>M1XRF</b>                                  | H or RRF        | H or RRF        | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    |          |
| 32                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        |   | **              | H or RRF        | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 48                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 64                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | **              | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 80                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | **              | **               | **                          | H or RRF                    | H or RRF                    | H or RRF |
| 96                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        |   | **              | **              | **              | **               | **                          | H or RRF                    | H or RRF                    | H or RRF |

| Total Wireless Zones (max.) | Data Bus Addr 2 | Data Bus Addr 3 | Data Bus Addr 4 | Data Bus Addr 5 | Data Bus Addr 6 | Starting Zn ID #97 Data Bus Addr 7 Zn 97 - 112 | Data Bus Addr 8 | Data Bus Addr 9 | Data Bus Addr 10 | No RF Zones Here            |                             |                             |          |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|-----------------|-----------------|------------------|-----------------------------|-----------------------------|-----------------------------|----------|
|                             | Zn 17 -32       | Zn 33 - 48      | Zn 49 - 64      | Zn 65 - 80      | Zn 81 - 96      |  | Zn 113-128      | Zn 129-144      | Zn 145-160       | Data Bus Addr 11 Zn 161-176 | Data Bus Addr 12 Zn 177-192 | Data Bus Addr 13 Zn 193-208 |          |
| 16                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | <b>M1XRF</b>                                   | H or RRF        | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    |          |
| 32                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **              | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 48                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **              | **              | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 64                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **              | **              | **               | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 96                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **              | **              | **               | **                          | H or RRF                    | H or RRF                    | H or RRF |

| Total Wireless Zones (max.) | Data Bus Addr 2 | Data Bus Addr 3 | Data Bus Addr 4 | Data Bus Addr 5 | Data Bus Addr 6 | Data Bus Addr 7 | Starting Zn ID #113 Data Bus Addr 8 Zn 113-128 | Data Bus Addr 9 | Data Bus Addr 10 | No RF Zones Here            |                             |                             |          |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|-----------------|------------------|-----------------------------|-----------------------------|-----------------------------|----------|
|                             | Zn 17 -32       | Zn 33 - 48      | Zn 49 - 64      | Zn 65 - 80      | Zn 81 - 96      | Zn 97 - 112     |  | Zn 129-144      | Zn 145-160       | Data Bus Addr 11 Zn 161-176 | Data Bus Addr 12 Zn 177-192 | Data Bus Addr 13 Zn 193-208 |          |
| 16                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | <b>M1XRF</b>                                   | H or RRF        | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    |          |
| 32                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **              | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    | H or RRF |
| 48                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **              | **               | **                          | H or RRF                    | H or RRF                    | H or RRF |

| Total Wireless Zones (max.) | Data Bus Addr 2 | Data Bus Addr 3 | Data Bus Addr 4 | Data Bus Addr 5 | Data Bus Addr 6 | Data Bus Addr 7 | Data Bus Addr 8 | Starting Zn ID #129 Data Bus Addr 9 Zn 129-144 | Data Bus Addr 10 | No RF Zones Here            |                             |                             |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|------------------|-----------------------------|-----------------------------|-----------------------------|
|                             | Zn 17 -32       | Zn 33 - 48      | Zn 49 - 64      | Zn 65 - 80      | Zn 81 - 96      | Zn 97 - 112     | Zn 113-128      |  | Zn 145-160       | Data Bus Addr 11 Zn 161-176 | Data Bus Addr 12 Zn 177-192 | Data Bus Addr 13 Zn 193-208 |
| 16                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | <b>M1XRF</b>                                   | H or RRF         | H or RRF                    | H or RRF                    | H or RRF                    |
| 32                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        |  | **               | **                          | H or RRF                    | H or RRF                    |

| Total Wireless Zones (max.) | Data Bus Addr 2 | Data Bus Addr 3 | Data Bus Addr 4 | Data Bus Addr 5 | Data Bus Addr 6 | Data Bus Addr 7 | Data Bus Addr 8 | Data Bus Addr 9 | Starting Zn ID #145 Data Bus Addr 10 Zn 145-160 | No RF Zones Here            |                             |                             |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---|-----------------------------|-----------------------------|-----------------------------|
|                             | Zn 17 -32       | Zn 33 - 48      | Zn 49 - 64      | Zn 65 - 80      | Zn 81 - 96      | Zn 97 - 112     | Zn 113-128      | Zn 129-144      |   | Data Bus Addr 11 Zn 161-176 | Data Bus Addr 12 Zn 177-192 | Data Bus Addr 13 Zn 193-208 |
| 16                          | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | H or RRF        | <b>M1XRF</b>                                    | H or RRF                    | H or RRF                    | H or RRF                    |

Cells marked " \*\*\* " indicate a **Reserved Address** which can only be used for wireless zones.  
 Cells marked " **RRF** " indicate bus addresses where ONLY a redundant M1XRF Receiver can be installed.  
 Cells marked " **H or RRF** " indicate bus addresses where either a M1XIN Hardwired Expander OR a redundant M1XRF Receiver can be installed.

## Appendix B - Examples of Zone Configurations

| Example A                  |             |                       | Example B                                |             |   | Example C  |               |   |                                  |
|----------------------------|-------------|-----------------------|--|-------------|---|--|---------------|---|----------------------------------|
| All 208 Zones as Hardwired |             |                       | 16 Hardwired Zones<br>144 Wireless Zones |             |   | 48 Hardwired Zones<br>112 Wireless Zones<br>PLUS 2 Redundant Receivers |               |   |                                  |
| Zones 1-16                 | Bus Addr x  | Inputs on Main Panel  | Zones 1-16                               | Bus Addr x  | Inputs on Main Panel                              | Zones 1-16   | Bus Addr x    | Inputs on Main Panel                              |                                  |
| Zones 17-32                | Bus Addr 2  | M1XIN                 | Zones 17-32                              | Bus Addr 2  | M1XRF   | Zones 17-32  | Bus Addr 2    | M1XIN   |                                  |
| Zones 33-48                | Bus Addr 3  | M1XIN                 | Zones 33-48                              | Bus Addr 3  | NO<br>M1XIN<br>Expanders<br>on these<br>addresses | Zones 33-48  | Bus Addr 3    | M1XIN   |                                  |
| Zones 49-64                | Bus Addr 4  | M1XIN                 | Zones 49-64                              | Bus Addr 4  |   | Zones 49-64  | Bus Addr 4    | M1XRF   |                                  |
| Zones 65-80                | Bus Addr 5  | M1XIN                 | Zones 65-80                              | Bus Addr 5  |   | Zones 65-80  | Bus Addr 5    | <----- Redundant M1XRF *                          |                                  |
| Zones 81-96                | Bus Addr 6  | M1XIN                 | Zones 81-96                              | Bus Addr 6  |   | Zones 81-96  | Bus Addr 6    | <----- Redundant M1XRF *                          |                                  |
| Zones 97-112               | Bus Addr 7  | M1XIN                 | Zones 97-112                             | Bus Addr 7  |   | Zones 97-112   | Bus Addr 7    | NO<br>M1XIN<br>Expanders<br>on these<br>addresses |                                  |
| Zones 113-128              | Bus Addr 8  | M1XIN                 | Zones 113-128                            | Bus Addr 8  |   | Zones 113-128  | Bus Addr 8    |   |                                  |
| Zones 129-144              | Bus Addr 9  | M1XIN                 | Zones 129-144                            | Bus Addr 9  |   | Zones 129-144  | Bus Addr 9    |   |                                  |
| Zones 145-160              | Bus Addr 10 | M1XIN                 | Zones 145-160                            | Bus Addr 10 |   | Zones 145-160  | Bus Addr 10   |   |                                  |
| Zones 161-176              | Bus Addr 11 | M1XIN                 | Zones 161-176                            | Bus Addr 11 |   | M1XIN or<br>Redundant<br>M1XRF *                                       | Zones 161-176 | Bus Addr 11                                       | M1XIN or<br>Redundant<br>M1XRF * |
| Zones 177-192              | Bus Addr 12 | M1XIN                 | Zones 177-192                            | Bus Addr 12 |   |  | Zones 177-192 | Bus Addr 12                                       |                                  |
| Zones 193-208              | Bus Addr 13 | M1XIN or Keypad Zones | Zones 193-208                            | Bus Addr 13 | M1XIN or Keypad Zones                             | Zones 193-208  | Bus Addr 13   | M1XIN or Keypad Zones                             |                                  |
| N/A                        | Bus Addr 14 | N/A                   | N/A                                      | Bus Addr 14 | N/A   | N/A  | Bus Addr 14   | N/A   |                                  |
| N/A                        | Bus Addr 15 | N/A                   | N/A                                      | Bus Addr 15 | N/A   | N/A  | Bus Addr 15   | N/A   |                                  |

Maximum of 144 Wireless Zones

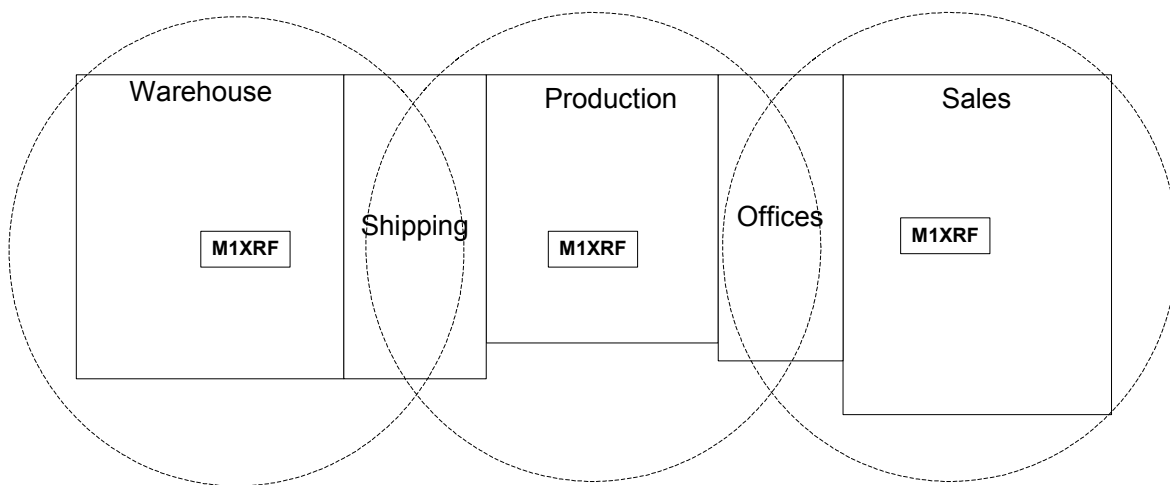
Maximum of 112 Wireless Zones

## Appendix C - Installing Multiple Redundant Receivers

After the first M1XRF Receiver has been installed, additional receivers can be installed for redundancy or improved coverage and range. Each additional M1XRF will require its own data bus address and must be enrolled into the control. The data bus address setting of any additional "redundant" M1XRF Receivers can be any unused data bus address except for addresses 13, 14, 15, 16.

**NOTE: While M1XIN Expanders cannot be assigned to addresses overlapped by wireless zones this is not true for M1XRF Receivers. From the example above, addresses 3, 4, and 5 could be used by additional "redundant" M1XRF Receivers. In theory it is possible to install up to 11 total M1XRF Receivers onto a single M1 or M1EZ8 control, but only if there were NO M1XIN Expanders installed.**

\* For large installations or added coverage in areas with poor wireless conditions, additional M1XRF "Redundant" Receivers can be connected to the data bus. Redundant receivers must be addressed and enrolled for proper supervision. Loss of any enrolled bus device causes a Missing Bus Device Trouble. **NOTE: Redundant M1XRFs can be set to any of the unused addresses that fall in the total wireless zone number assignments.**



EXAMPLE OF LARGE COMMERCIAL BUILDING with 3 M1XRF Receivers

## Appendix D - Updating Firmware in the ELK-M1XRF

Operating firmware is stored in "Flash" memory. This state-of-the-art memory allows electronic field updates and eliminates the old fashion method of changing IC chips or shipping boards back to the factory. As new firmware updates become available, they will be posted on ELK's Dealer ONLY restricted website found at [www.elkproducts.com](http://www.elkproducts.com). **NOTE: Firmware updating can only be done through the M1 Control using a Direct to PC Com port connection or an optional Ethernet Network connection. Dial-up connections cannot be used to perform firmware updates.**

### How to Update Firmware:

1. Physically connect the Computer and Control using either the RS-232 Serial Ports or the M1XEP Ethernet Interface.
3. Start ElkRP and open the account belonging to the control. Click on the Connection menu icon and establish a connection. Again, use the appropriate **Direct using Com\_ OR Network** options.
4. Click on Update/Verify Firmware from the Send/Rcv menu icon.
5. On the Update/Verify screen, select the device to be updated. In this case it is a Input Expander. Then also select the "Update to new firmware" option. Then click Continue.
6. The Update Firmware screen displays the device name, the current Firmware, Hardware, and Bootware version, and a pull down window for selecting the firmware version to use on the update. Select the appropriate firmware that you wish to use. **NOTE: All update (.bin) files that are downloaded or received should be stored in your ~Program Files\ElkRP\Updates directory. This is where RP looks for all update files.**
7. Click on the check box for "Update". If "Reprogram" or "Rollback" is displayed the firmware file is the same as OR older that what is in the control. Reprogramming with the same firmware is a waste of time but was included for factory testing purposes. Rollback is not recommended except under the guidance of Elk Technical Support.

