Marsco Technologies Inc.

FireRanger Operations Manual

System Components:

1. Battery powered Keypad controller with wireless transceiver
2. 220Vac Range Interbox power controller with wireless transceiver
3. Battery powered Smoke Sensor with wireless transceiver

Basic functionality of the system:

The function of this product is to disconnect the power to an electric range in the event that smoke is detected by it's dedicated smoke sensor. It is neither a primary nor secondary function to issue an alarm. The audible 'chirp' from the equipment serves only as a simple troubleshooting aid to help the user understand why the electric range has been shut off.

This product does not interact with any other existing smoke detectors and does not operate as a smoke detector/alarm. It's dedicated 'Smoke Sensor' serves only to send an electronic signal to the 'Interbox' to shut off the stove.

There is no smoke alarm functionality associated with this product.
This product is not an emergency signaling or smoke alarm product.

All components of the FireRanger system must be operational (powered) and within RF transceiver functional range (typically within 8m). The recommended placement of the Smoke Sensor is minimum12 inches from any ceiling or wall corner. Example: Minimum12 inches out from the wall, or 12 inches down from the ceiling.

Installing Batteries

To install batteries in the Keypad controller, remove the back panel by removing 4 Philips head screws securing the back panel of the Keypad controller. Install two (2) “AAA” batteries observing the correct polarity. Replace the back panel.

To install the battery in the Smoke Sensor, open the battery access door on the side of the smoke sensor. Insert a fully charged 9 volt battery. Close the access door.

No batteries are required for the Interbox controller to operate, rather it is only necessary to plug the Interbox controller into a 240Vac Range power outlet.

The current version of firmware (v1.7) requires that the Interbox and Smoke Sensor wireless transceivers be operating and in "*ready*" state before initiating the keypad as will be described in the proceeding:

Turning on the Keypad

Press the button. The button will illuminate Red. The Keypad has successfully been brought from its low current “sleep” mode”. If the default NO PASSWORD option is active, the Interbox controller will be armed (activated) at this time. The Green LED in the upper left hand corner of the Keypad will illuminate briefly, followed by the button’s Red LED extinguishing.

Please note that the button is also referred to as the Panic Button on page 10.

A password can be added to prevent unauthorized operation of the electric range. If a PASSWORD is desired, proceed to enter the PASSWORD as follows:

Keypad Operation

Password:

The default factory password is 0000, which in effect is a NO PASSWORD condition.

Step 1: To enter a password for added security, it is necessary to press and release the * and # in successive order. When the * is pressed the button LED will illuminate indicating successful recognition by the operating firmware. When the # is pressed the button LED will extinguish. The Red LED in the upper left corner of the keypad will illuminate. The keypad has now been successfully placed in PASSWORD CHANGE mode.

Step 2: Enter the new desired numeric password consisting of any 4 numeric button presses (0000 is reserved as a no password entry).

Step 3: Re-enter the 4 numbers selected as the password. The Red LED in the upper left corner of the Keypad will flash four times, indicating a successful password entry.

To exit the PASSWORD CHANGE mode at any time, press the * once and the password will return to what was originally entered.

Note: if the Red LED illuminates at any point while re-entering the 4-number password in Step 3, the password has been entered incorrectly or a problem with the password entry has been encountered. The control firmware will return to the beginning of Step 2 (indicated by the Red LED extinguishing). Perform Steps 2 and 3 until the four flashes are observed as described in Step 3.

If you are attempting to change the password and this error occurs, the password will revert back to the original password. In the event you decide to not proceed with Step 2, press the * once to exit the PASSWORD CHANGE mode. The password will return to what was originally entered.

Turning off the system

To turn off the FireRanger system it is necessary to re-enter the current password. If the default NO PASSWORD is being used, it is only necessary to press the “0” button once to turn off the FireRanger system. This will disable the Interbox 240Vac power controller and place the Keypad in the low power 'sleep' mode. Note: In the current configuration the Smoke Sensor will continue to issue HEART BEAT messages (see page 8 for the HEART BEAT description).

HEART BEAT operation

After the Interbox has successfully activated the Keypad controller will issue a HEART BEAT RF transmission approximately every 10 minutes. The HEART BEAT indicator is a short Green LED flash in the upper left corner of the Keypad. The Smoke Sensor will also issue a HEART BEAT RF transmission approximately every 10 minutes, repeating continuously as long as battery power has been applied to that device. This HEART BEAT is intended to maintain the RF link between the Keypad-Interbox-Smoke Sensor system.

The HEART BEAT from each issuing device (Keypad or Smoke Sensor) is received by the Interbox RF transceiver, maintaining the 240Vac power controller in an active state. The Interbox transceiver will respond to each issuing device with an acknowledgment RF transmission. If the Interbox transceiver does not receive a HEART BEAT from either of the issuing devices, the 240Vac power controller will be disabled after a period of approximately 10 minutes from the last successful HEART BEAT reception. If the

Keypad does not receive the RF transmission acknowledgement, the Keypad transceiver will attempt to re-transmit the HEART BEAT RF transmission up to five attempts before ceasing and returning to sleep mode.

If the Red LED illuminates briefly after the keypad issues it's HEART BEAT, this is an indication the Interbox controller has not successfully received the HEART BEAT from the Smoke Sensor since the last HEART BEAT transmission from the Keypad. If this indication continues on subsequent Keypad HEART BEAT transmissions the Interbox controller will de-activate. It will be necessary to troubleshoot the components of the system.

Panic button operation

Once a system link has been activated it is possible to manually disarm the Interbox controller by pressing the button. An audible “beep” sequence will be heard from the Interbox controller indicating it has been disarmed through the Panic Mode, repeating every HEART BEAT cycle (approximately every 10 minutes). Also the LED will flash indicating the same condition.

Re-arming after a panic condition:

Press and release the button. The Interbox will re-arm, and the LED will stop flashing.

Smoke event alarm condition:

A smoke event will trigger the Smoke Sensor to continuously transmit a command to disarm the Interbox. Once the Interbox controller de-activates, this Smoke Sensor transmission will cease. This will be indicated by an audible alarm from the Smoke Sensor and an audible beep sequence from the Interbox controller indicating it has been disarmed through the Smoke Sensor command. This audible beep sequence will repeat every HEART BEAT cycle (approximately every 10 minutes). This is the same sequence as the Panic Alarm indication. Also the LED will flash in the same manner as the Panic condition. To restore operation after a smoke event, press the key.

Turning OFF the system:

The system is turned OFF by entering the PASSWORD. In the case of the default NO PASSWORD configuration, simply enter a single "0" button press to turn OFF the system. This will place the Keypad back in a low current consumption 'sleep' mode.

Note: The current version of firmware will only place the Keypad in low current sleep mode. The Interbox, although disarmed, is still powered from a single phase of the supplied 240Vac. The Smoke Sensor will continue to enter low power mode, exiting temporarily to active mode approximately every 10 minutes to issue a HEART BEAT RF transmission to the Interbox controller

Interbox loss of power:

In the event the 240Vac power source to the Interbox is lost, even briefly, the Interbox will disarm and will not re-arm until manually commanded from the Keypad. The LED will flash indicating a problem condition has occurred. In this event, press and release the button to re-arm the Interbox.

Low battery indications:

Keypad:
The Keypad will indicate a low battery condition when battery voltage begins to drop towards an unreliable operating voltage for the microcontroller. This will be indicated by the HEART BEAT LED indication in the upper left corner indicating Red instead of Green. The Interbox will issue a single beep every HEART BEAT transmission cycle (once, approximately every 10 minutes).

Smoke Sensor:
The Smoke Sensor will “chirp” when the voltage of the battery begins to drop towards an unreliable voltage level. As well the Interbox will issue a single beep every HEART BEAT transmission cycle (once, approximately every 10 minutes).

Troubleshooting:

If you hear:

4 beeps: An alarm condition has caused the Interbox to disengage the main relay. This will be heard every 10 minutes.

3 beeps: The Interbox main relay has been disengaged because the Interbox has missed 2 consecutive HEART BEAT messages from one of the battery operated devices. This will be heard every 10 minutes.

2 beeps: The Interbox main relay has been disengaged after failing to pass the relay failure mitigation test. This will be heard every 10 minutes.

1 beep: One of the battery operated devices has a low battery voltage detected. The Interbox main relay will remain unchanged.

Note: The Smoke Sensor single beep is shorter in duration and of a higher frequency, like a chirp. The Keypad has a single beep of the same duration and frequency of the other individual beeps described above.