

## SECTION 4

# Operating Instructions

The MS-2 and MS-4 have two modes of operation which are Normal and Walktest modes. Upon initial power-up, the system will be in Normal Mode. This section discusses operation of the control panel in the Normal Mode.

### 4.1 Switch Functions in Normal Mode

#### 4.1.1 ACK - Acknowledge

The Acknowledge button, which is located on the FACP membrane switch panel, silences the system piezo sounder and changes all flashing system LEDs to on steady. Pressing the Acknowledge button will have no effect on the Notification Appliance Circuits. To activate, press and hold the Acknowledge button for a minimum of one second.

#### 4.1.2 Silence

Pressing the Silence button, which is located on the FACP membrane switch panel, silences the system piezo sounder, turns off the silenceable Notification Appliance Circuits and turns on the Alarm Silence LED. *The Silence button will be ignored for nonsilenceable waterflows and NACs.* Upon the occurrence of a subsequent event (alarm or trouble), Silence is overridden and the control panel will respond to the new event. To activate, press the Silence button for a minimum of one second.

*Note: If Silence Inhibit has been enabled, NACs cannot be silenced for one minute following initiation of an alarm.*

#### 4.1.3 Zone Enable/Disable

To disable a zone, press the corresponding Zone Enable/Disable button. The Zone Disable and system Trouble LEDs will blink, as well as the Trouble LED for the disabled zone. To enable the zone, press the Zone Enable/Disable button a second time.

#### 4.1.4 Reset/(Lamp Test)

The system Reset button, which is located on the FACP membrane switch panel, resets the system and any smoke detectors. Each press of the Reset button will cause the following:

- ✓ Clear all status LEDs
- ✓ Turn off the Notification Appliance Circuits
- ✓ Reset all zones by temporarily removing power
- ✓ Silence the onboard piezo sounder
- ✓ Restore all system relays to normal
- ✓ Temporarily remove power from the resettable power output

*Note: if Silence Inhibit is active, a panel reset cannot occur for one minute.*

Any alarm, supervisory or trouble condition that exists after a system reset will resound the system, reactivating appropriate system activity. Any zones that were disabled before the reset will be disabled after the reset.

**Lamp Test** - When the Reset button is pressed and then released, the FACP will perform a Lamp Test. All panel LEDs will be turned on and the piezo will sound for approximately two seconds.

### 4.1.5 Walktest

The Walktest button, which is located on the FACP membrane switch panel, allows a panel walktest to be performed. Pressing and holding the Walktest button for a minimum of two seconds causes the FACP to enter audible walktest. Pressing the Walktest button and then the Silence button and holding both for a minimum of two seconds will cause the panel to enter silent walktest. Walktest can be exited by pressing and holding the Walktest button for a minimum of three seconds or by pressing the Reset button. Refer to “Walktest” for a complete description of this feature.

## 4.2 Walktest

Walktest allows the testing of all control panel IDCs (input zones). An audible or silent walktest may be performed.



*It is important to note that while the FACP is in Walktest mode, the control panel is in an off-normal condition and does not provide fire protection.*

*It should also be noted that the trouble relay will be activated while the control panel is in Walktest mode. Placing the control panel into Walktest mode will only be possible if the system has no active alarms.*

Prior to initiating a walktest, check to make certain that **all system faults have been cleared**. Upon entering Walktest mode, the following conditions should occur:

- Trouble relay will activate
- Alarm relay will be disabled
- Supervision relay will be disabled (MS-4 only)
- Piezo sounder will be disabled
- I<sup>3</sup> smoke detectors will enter their own test mode causing their LEDs to flash twice every five seconds (refer to the I<sup>3</sup> specification document)
- All alarm conditions will be displayed as they occur by blinking zone alarm LED
- All zone troubles will be displayed as they occur by blinking zone trouble LED

During walktest, the FACP zone LEDs will blink for the first activation on a zone. Subsequent activations on the same zone will cause the corresponding zone LED to blink the number of alarms on the zone since the start of the test, followed by a two second pause and then a repeat of the sequence.

*Note that following a zone activation, a 6 second reset for conventional and 60 second reset for I<sup>3</sup> detectors is initiated. No new alarms or troubles will be detected during this reset period.*

Disabled zones will not respond during Walktest. A zone may be disabled while in Walktest mode, should a faulty device be detected. This allows the user to return the system to Normal mode, enabling all other zones while preventing the faulty zone from triggering a false alarm.

#### Audible Walktest

To perform an audible Walktest, press and hold the Walktest button for a minimum of two seconds. The Trouble and Walktest LEDs will blink at a ¼ second rate.

While testing input devices, the first initiating device activated on a zone will cause the NACs to sound for four seconds. Subsequent device activations on the same zone will cause the NACs to turn on for one second. Any smoke detectors that are activated will automatically be reset by the panel. Zone faults (open circuits) will cause the NACs to remain on steadily until the fault is cleared.

*During an audible walktest, if a device remains latched in alarm (such as a Pull Station that is not reset after activation), subsequent testing of devices on the same zone will not trigger the NACs. Be certain to reset or clear each device after testing.*

**Silent Walktest**

To perform a silent Walktest, press the Walktest button, then press the Alarm Silence button and hold both for a minimum of two seconds. The Trouble, Walktest and Alarm Silence LEDs will blink at a ¼ second rate.

A silent walktest will not activate the control panel Notification Appliance Circuits. All alarm and trouble conditions must be observed using the LEDs at the control panel as described in the previous sections.

**Exiting Walktest Mode**

Walktest mode can be exited by pressing and holding the Walktest button for a minimum of three seconds or by pressing the Reset button. *The time-out feature will cause the control panel to automatically exit Walktest mode if no button presses have occurred for one hour.*

## 4.3 Status LEDs

**AC Power LED**

A green LED that remains on while the AC power supply is within correct limits. *If this indicator fails to light under normal conditions, service the system immediately.*

**NAC Disable LED**

A yellow LED that blinks to indicate that a Notification Appliance Circuit has been disabled using the main circuit board DIP switches. The LED will turn on steady when the Acknowledge or Alarm Silence button is pressed.

**Zone Disable LED**

A yellow LED that blinks to indicate that one or more alarm zones have been disabled using the Zone Enable/Disable buttons. The disabled zone's trouble LED will also be on. The Acknowledge or Alarm Silence button does not affect the Zone Disable LED.

**NAC Fault LED**

A yellow LED that blinks to indicate that an NAC trouble condition exists in the system. The LED turns on steady when the Acknowledge or Alarm Silence button is pressed.

**System Trouble LED**

A yellow LED that blinks to indicate that a system fault or abnormal condition exists and that the fire alarm system may be inoperative. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Power Trouble LED**

A yellow LED that blinks to indicate an AC power, battery or charger trouble condition. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Walktest LED**

A yellow LED that blinks to indicate that the control panel is in Walktest mode. The Acknowledge and Alarm Silence buttons do not affect the Walktest LED.

**Alarm Silence LED**

A yellow LED that turns on to indicate that an Alarm condition exists in the system but the Notification Appliance Circuits and the local piezo sounder have been silenced.

**Zone Fire Alarm LED**

A red LED for each zone that blinks to indicate that an alarm exists on the corresponding zone. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Zone Supervisory LED**

A yellow LED for each zone that blinks if the zone has been programmed for supervisory and a supervisory condition exists on the corresponding zone. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

*Note that an I<sup>3</sup> smoke detector freeze condition is displayed as a supervisory condition. The zone does not have to be programmed as a supervisory for this to occur.*

**Zone Trouble LED**

A yellow LED for each zone that blinks to indicate that a trouble exists on the corresponding zone. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Zone Maintenance LED**

A yellow LED for each zone that blinks to indicate that a I<sup>3</sup> smoke detector on the corresponding zone is dirty or in need of maintenance. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Earth Fault LED (on main circuit board)**

A yellow LED that blinks to indicate a ground fault condition on the system. A ground fault occurs when zero impedance between the FACP and earth ground exists. The LED turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Battery Fault LED (on main circuit board)**

A yellow LED that blinks to indicate a low battery or no battery condition on the FACP. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

**Charger Fault LED (on main circuit board)**

A yellow LED that blinks to indicate a battery charger fault. It turns on steady when the Acknowledge or Alarm Silence button is pressed.

## 4.4 Operation

Normal mode is the standard mode of operation. In this mode, the panel continuously monitors system status. When no alarm or trouble conditions exist, the control panel will be in the following state:

- all LEDs will be off (except the AC Power LED)
- the Notification Appliance Circuits will be off
- all relays are in their normal state
- the onboard piezo sounder will be off
- I3 smoke detectors will be polled for maintenance and freeze conditions on initial entry into Normal mode. Thereafter, each device will be polled every hour for freeze and every four hours for maintenance conditions

All alarm and system trouble conditions are annunciated on the control panel's LEDs.

*Note: To ensure that the system is functioning properly, the FACP will perform a freeze check five minutes after the panel is reset, followed by a maintenance check. If there is no freeze or maintenance condition, the panel will continue to monitor for freeze conditions every hour and maintenance conditions every four hours.*

#### 4.4.1 Fire Alarm Response

The control panel will, upon detection of an alarm condition, cause the following:

- Latch the alarm condition - requires panel reset to clear alarm condition
- Blink the Zone Alarm LED one second On and one second Off
- Turn on remote annunciator alarm LED and piezo sounder
- Turn the Notification Appliance Circuit(s) on
- Turn the FACP piezo sounder on steady
- Turn on the alarm relay
- Start the Silence Inhibit, Auto-silence and Trouble Reminder functions if enabled

#### 4.4.2 Fire Alarm Restoral

The control panel returns to normal after all alarms have been cleared and a system reset button has been pressed (pull stations have been reset, smoke detectors have reset and no smoke is present, waterflow has stopped). The control panel will perform the following upon restoral of all active alarms:

- Turn off the FACP Zone Alarm LED
- Turn off remote annunciator alarm LED and piezo sounder
- Turn off the Notification Appliance Circuit(s)
- Turn off the FACP piezo sounder
- Turn off the alarm relay
- I3 smoke detectors will be polled for maintenance and freeze conditions on initial entry into Normal mode. Thereafter, each device will be polled every hour for freeze and every four hours for maintenance conditions

#### 4.4.3 System Supervisory Condition Response

Zones can be programmed for supervisory in applications where a waterflow sensing device has been employed and a sprinkler tamper switch is to be monitored. An I<sup>3</sup> detector in a 'freeze' condition (detected abnormally low ambient temperature) will also generate a supervisory condition on its alarm zone (refer to the I<sup>3</sup> specification sheet for temperature threshold). Any supervisory condition will cause the control panel to perform the following functions:

- Blink the FACP Zone Supervisory LED ½ second On and ½ second Off
- Pulse the piezo sounder ½ second On and ½ second Off
- Turn on the supervisory relay (MS-4 only)

#### 4.4.4 System Supervisory Restoral Response

When the supervisory condition has been cleared, the control panel will perform the following:

- Turn off the FACP Zone Supervisory LED
- Turn off the piezo sounder
- Turn off the supervisory relay (MS-4 only)

#### 4.4.5 Trouble Condition Response

The control panel, upon detection of one or more trouble conditions, will perform the following:

- Blink the FACP System Trouble LED one second On and one second Off
- Blink the FACP Zone Trouble LED one second On and one second Off
- Turn on remote annunciator Trouble LED and pulse the piezo sounder
- Pulse the FACP piezo sounder one second On and one second Off
- Transfer fail-safe Trouble relay
- Additional LEDs will turn on or blink according to the specific trouble
  - ✓ NAC Disable LED if NAC has been disabled
  - ✓ Zone Disable LED if a zone has been disabled
  - ✓ NAC Fault LED if a fault is detected on an NAC
  - ✓ Power Trouble LED if an AC, battery or charger fault is detected
  - ✓ AC Power LED will turn off if AC fail or brownout occurs
  - ✓ Alarm Silence LED if Silence button is pressed after an alarm or trouble
  - ✓ Walktest LED if Walktest mode is entered
  - ✓ Zone Maintenance LED if a I<sup>3</sup> smoke detector needs servicing
  - ✓ Earth Fault LED if a ground fault occurs (zero impedance to ground)
  - ✓ Battery Fault LED if low or no battery condition occurs
  - ✓ Charger Fault LED if a charger trouble occurs

#### 4.4.6 Trouble Condition Restoral

The control panel performs the following upon restoral of all trouble conditions:

- Turn off the FACP System Trouble LED
- Turn off the FACP Zone Trouble LED
- Turn off the remote annunciator Trouble LED and piezo sounder
- Turn off the piezo sounder
- Transfer the fail-safe Trouble relay
- Turn off additional LEDs corresponding to specific troubles