

## CHAPTER 4 Operations

### 4.1 ALARM, SUPERVISORY & TROUBLE STATUS LED's

EVENT	LED	PIEZO
Upon supervisory alarm or trouble	Flashes (2 rep/sec)	On
Upon silence or acknowledge	Steady	Off
Upon event recurrence	Flashes (2 rep/sec)	On

Piezo operation is: {Alarm Events: Chirp} {Supervisory: Warble} {Trouble: On steady}  
 Piezo priority is in same order; alarm events over supervisory events over trouble events.

### 4.2 LOW POWER CONDITIONS

System will register brown-out trouble if AC voltage is less than approximately 85% of rating. Battery power is enabled upon AC trouble or Alarm. When AC power is missing and the batteries have been depleted to a low voltage condition, (typically less than 21 VDC) the system will cease operations. Cease operations means the LCD will record SYSTEM POWER LOW, OPERATION HAS CEASED and all analog loops will cease polling. Outputs previously activated can continue to operate as long as enough power is available. The system will restore from this condition when commercial power is re-applied and the system is reset or the input voltage rises to 24 VDC, where SYSTEM POWER OK OPERATION RESTORED is recorded.

### 4.3 TROUBLE EVENT OPERATION

There are a few troubles that are latching, refer to Appendix 2 Messages. All other troubles are non-latching (upon restoration to a normal condition). The system returns to the SYSTEM MESSAGE screen in approximately 1.5 minutes if all troubles are non-latching and all have cleared.

Upon system, circuit, or device trouble, the system enters trouble state. Typical response includes:

Piezo:	Steady ON until ACKnowledged or silenced.
Trouble LED:	Flash until ACKnowledged or silenced.
Display LCD:	Displays information pertinent to event - trouble type, device/circuit custom message, zone custom message, time and date of event.
Trouble Relay(s):	Activate. (this relay is normally energized and will de-energize)
Trouble Audible(s):	Activate until silenced.

Trouble events are silenced with ALARM SILENCE (key) button. The trouble is recorded in the CURRENT, EVENT, and ZONE history buffers. If the trouble is non-latching and it clears, a trouble clear event will also be recorded. If a non-latching trouble event clears and no other events are present, the system turns off related outputs, piezos, trouble LED, and returns to the SYSTEM MESSAGE screen.

#### 4.4 PRE-ALARM AND ALARM OPERATION

The Pre-Alarm state is not recorded until a device has been polled with 4 consecutive polls above its pre-alarm threshold. Upon the first sensor meeting its configured Pre-Alarm 1 threshold, system enters **pre-alarm 1** state. Typical response includes:

- Piezo: Chirp (On & Off pattern) until ACKnowledged or silenced.
- Pre-Alarm Warning LED: Flash. After ACKnowledge or silence, illuminate steady.
- Display LCD: Displays information pertinent to pre-alarm event - pre-alarm type, device custom message, zone custom message, time and date of event and current alarm % obscuration.
- Pre-Alarm1 Relay(s): Activate until silenced.
- Pre-Alarm1 Audible(s): Activate until silenced.
- Sensor LED: Remains flashing as during normal polling.

If the pre-alarm 1 condition clears, a pre-alarm restore event will be recorded and the system will turn off outputs, piezo, Pre-Alarm warning LED and return to the SYSTEM MESSAGE screen if no other events are present.

Upon the first sensor meeting its configured Pre-Alarm 2 threshold, system enters **pre-alarm 2** state. Typical response includes:

- Piezo: Chirp (On & Off pattern) until ACKnowledged or silenced.
- Pre-Alarm Warning LED: Flash. After ACKnowledge or silence, illuminate steady.
- Display LCD: Displays information pertinent to pre-alarm event - pre-alarm type, device custom message, zone custom message, time and date of event and current alarm % obscuration
- Pre-Alarm 2 Relay(s): Activate. Pre-Alarm 1 relays remain active or activate if silenced.
- Pre-Alarm 2 Audible(s): Activate until silenced. Pre-Alarm 1 audibles remain active or activate if silenced.
- Sensor LED: Remains flashing as during normal polling

If the pre-alarm 2 condition clears, a pre-alarm restore event will be recorded and the system will turn off outputs, piezo, Pre-Alarm warning LED and return to the SYSTEM MESSAGE screen (turning off outputs) if no other events are present.

Upon the first sensor meeting its configured Alarm threshold, manual pull or waterflow is activated, system enters **alarm** state. Typical response includes:

- Piezo: Chirp (On & Off pattern) until ACKnowledged or silenced.
- Fire Alarm LED: Flash. After ACKnowledge or silence, illuminate steady.
- Display LCD: Displays information pertinent to alarm event - alarm type, device/circuit customer message, time and date of event.
- Alarm Relay(s): Activate. Pre-Alarm relays remain active if from sensor alarm or activate if silenced.
- Alarm Audible(s): Activate until silenced. Pre-Alarm audibles remain active if from sensor alarm or activate if silenced.
- Sensor LED: Turns on steady to indicate source of alarm.

The alarm event is latching and requires operator intervention to clear the alarm. Pre-Alarm audibles and relays also remain latched after an alarm occurs.

#### 4.5 PRE-DISCHARGE, RELEASE AND ABORT OPERATION

If the zone is a suppression zone, upon alarm of a second sensor meeting the cross-zone or counting zone detection criteria (or alarm of the first Single Sensor Release sensor), system enters **predischarge** state. Typical response changes to:

Piezo:	Chirp (On & Off pattern) until ACKnowledged or silenced.
Fire Alarm LED:	Flash. After ACKnowledge or silence, illuminate steady.
Display LCD:	Displays zone information of pending release - countdown, abort status, etc.
Predischarge Relay(s):	Activate. Pre-Alarm and alarm relay(s) also remain active.
Predischarge Audible(s):	Activate until silenced. Pre-Alarm and alarm audible(s) also remain active.

Upon completion of predischarge countdown (or activation of a manual release), system enters **release** state. Typical response changes to:

Piezo:	Chirp (On & Off pattern) until ACKnowledged or silenced.
Fire Alarm LED:	Flash. After ACKnowledge or silence, illuminate steady.
Display LCD:	Displays zone information of released zone.
Release Relay(s):	Activate. Pre-Alarm, alarm, & predischarge relay(s) also remain active, if from sensor. Activation of manual release causes alarm and predischarge relays to activate.
Release Audible(s):	Activate until silenced. Pre-Alarm, alarm & predischarge audibles also remain active, if from sensor. Activation of manual release causes alarm and predischarge audibles to activate.
Release Circuit(s):	Activate Agent Release or Solenoid circuit.

The Manual Release, Predischarge, and Release events are latching and require operator intervention to clear the events. Predischarge and Release outputs are silenceable with the ALARM SILENCE button, located on the display. The Manual Release event is recorded in the CURRENT and ALARM history buffers. The Predischarge, and Release events are recorded in the CURRENT and ZONE history buffers.

Upon activation of the Abort Switch during an invalid abort time, the system records the abort as a trouble event and activates appropriate abort outputs. While activated during a valid abort time, typical system response includes:

Piezo:	Chirp (On & Off pattern) until ACKnowledged.
Fire Alarm LED:	Flash. After ACKnowledge, illuminate steady.
Display LCD:	Shows zone information indicating Abort activation.
Abort Relay(s):	Activate while Abort is held. (Nonlatching)
Abort Audible(s):	Activate while Abort is held. (Nonlatching)
LCD Count-down timer:	Modified (or paused) per abort type description.
Predischarge audible(s):	Silence if programmed for silence on Abort. Unsilenced upon deactivation of abort switch, if pertinent.

The abort output is non-silenceable. The abort event is non-latching and the abort outputs will toggle with the status of the input. The valid abort event (and the abort restore) is recorded in the CURRENT, ALARM, and ZONE buffers. The invalid abort event is recorded in the CURRENT, EVENT, and ZONE BUFFERS.

#### 4.6 WATERFLOW OPERATION

Upon waterflow input activation, system enters **alarm** state. (See Alarm State operation)  
Waterflow input is latching.

#### 4.7 SUPERVISORY OPERATION

Upon activation of a supervisory input, system enters **supervisory** state. Typical response includes:

Piezo: Warble (On & Off pattern) until ACKnowledged or silenced.

Supervisory LED: Flash. After ACKnowledge or silencing, illuminate steady.

Display LCD: Displays information pertinent to supervisory - device/circuit custom message, time and date of event.

Supervisory Relay(s): Activate until silenced, while supervisory input is active.  
(Non-latching)

Supervisory Audible(s): Activate until silenced while supervisory input active.(Non-latching)

Supervisory outputs are silenceable with Alarm Silence button. Supervisory events are recorded in CURRENT, EVENT, and ZONE history buffers. If supervisory event clears and no other events are present, the system turns off outputs, piezo and LED and returns to the SYSTEM MESSAGE screen. Supervisory inputs may be programmed latching or non-latching.

#### 4.8 CRITICAL PROCESS MANAGEMENT OPERATION

Upon activation of a process input, system enters **critical process management** state. Typical response includes:

Piezo: Off.

Display LCD: Displays information pertinent to process operation - device/circuit custom message, time and date of event.

Process Relay(s): Activate while process input is active. (Non-latching)

Process Audible(s): Activate until silenced while process input is active.(Non-latching)

Process events are not silenceable. Critical Process Management events are logged in CURRENT, EVENT, and ZONE history buffers. If process event clears and no other events are present, the system turns off outputs and returns to the SYSTEM MESSAGE screen.

The Cheetah system is capable of providing annunciation of both critical and non-critical process management. Critical process management is intended to monitor a process, which, if out of control, would result in life or property loss. Critical process management annunciation is intended to evacuate the hazardous area. Evacuation notice is accomplished by audible and visual appliances configured to activate during a process management input to the Cheetah. An example of critical process management would be to have boiler over-pressure safeties monitored by an addressable input to the Cheetah. Upon activation of the safeties, the Cheetah system would provide audible/visual evacuation notice.

Non-critical process management is designed to notify personnel of a non-life or non-property hazard which has exceeded its limits. Non-critical process management only requires notification of the condition which could be a trouble condition annunciated at the panel or transfer of a relay contact. An example of non-critical process management would be to have a freezer temperature monitored by an addressable input to the Cheetah. If the temperature exceeded its limits, notification could be provided by the Cheetah system.

#### 4.9 DRILL EVENT OPERATION

Upon activation of a drill input, or the drill button on the display, system enters **drill** state. Typical response includes:

Piezo:	Warble (On & Off pattern) until ACKnowledged.
Display LCD:	Displays information pertinent to drill operation - device/circuit custom message, time and date of event.
Drill Relay(s):	Activate while drill input is active. (Non-latching)
Drill Audible(s):	Activate while drill input is active.(Non-latching)

Drill outputs are not silenceable. Drill events are logged in CURRENT, EVENT, and ZONE history buffers. If drill event clears and no other events are present, the system turns off outputs and piezo and returns to the SYSTEM MESSAGE screen. Note: the drill button on the display acts as a toggle switch; press once to activate all zone drill, press again to de-activate (restore).

#### 4.10 WALKTEST OPERATION

Upon activation of walktest (from Special menu P4) system enters **walktest** state. Typical response includes:

Piezo:	ON until ACKnowledged or silenced.
Trouble LED:	Flash. After ACKnowledge or silencing, illuminate steady.
Display LCD:	Displays information pertinent to walktest operation - walktest active, time and date of event.
All Zone Trouble Relay(s):	Activate while walktest is active. (Non-latching)
All Zone Trouble Audible(s):	Activate until silenced while walktest is active.(Non-latching)

The walktest is a means to test portions of the system without unneeded disturbance to people in other areas of the system. The walk-test is a toggle mode, it is either off or on. While on, the system accepts normal alarm events and responds by recording the events and activating output devices which may or may not be configured to respond to walktest events per these rules:

- SOM: Individually configured to respond to walktest events.
- R2M: Individually configured to respond to walktest events.
- SRM: Does NOT respond to walktest events.
- AUD1&AUD2: Automatically responds to walktest events.
- RELAYS: Automatically responds to walktest events.

The output will turn on for one pattern (or 4 seconds) to test the device. The walktest will be active for the pre-programmed time-out (10-30 minutes, selectable in 1 minute increments) as displayed on the walktest screen. The walktest will remain active until a reset or a walktest timeout. If the walktest is completed with a time-out and no other events are present, the system returns to the SYSTEM MESSAGE screen. Walktest events are recorded in CURRENT and EVENT history buffers.

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