Simplex

UL, ULC, CSFM Listed; FM Approved MEA (NYC) Acceptance;*

Datasheet

Release Control Fire Alarm Systems

4004R Suppression Releasing Panel for Automatic Extinguishing, Deluge and Preaction Sprinkler Control

Features

Fire alarm control panel designed specifically for suppression release operation with:

- Four initiating device circuits (IDCs)
- Two notification appliance circuits (NACs)
- Two releasing appliance circuits (RACs)
- Two special purpose monitor inputs (SPMs) that accept manual release request and manual abort request for Agent Release systems, and waterflow and supervisory for Preaction or Deluge systems
- Three auxiliary relays with selectable functions
- Easily selected activity timing options

Suppression release operation includes:

- Automatic extinguishing release
- Deluge and preaction sprinkler system release
- Dual or single hazard area protection
- Combined agent release and preaction operation**
- IDCs are selectable for cross-zoning or for activation from a single detection input
- Short circuit RAC supervision
- Compatible with Listed/Approved 24 VDC or 2, 12 VDC series connected actuators

Audible Escalation of Events:

- Single Audible Appliance Tone: Stage 1 activates Temporal or 20 bpm March Time pattern; Stage 2 activates 120 bpm March Time pattern to indicate release timer active; Release activates On Steady to indicate release timer expired and actuator is activated
- Dual Audible Appliance Control (Single Hazard): RAC 2 provides a third NAC for dedicated Stage 1 Bell control; NACs 1 and 2 indicate release as On Steady. See note.

Note: Requires Software Revision 4.01 or higher.

Operator interface provides:

- Status LEDs per circuit for Alarm, Trouble, and Supervisory (where appropriate)
- Acknowledge, Alarm Silence, and System Reset
- Operating mode selection and timer selections when in programming mode

Related system components:

- Coil supervision module 2081-9046, one per RAC
- Maintenance Switch, one per RAC
- Abort Switch

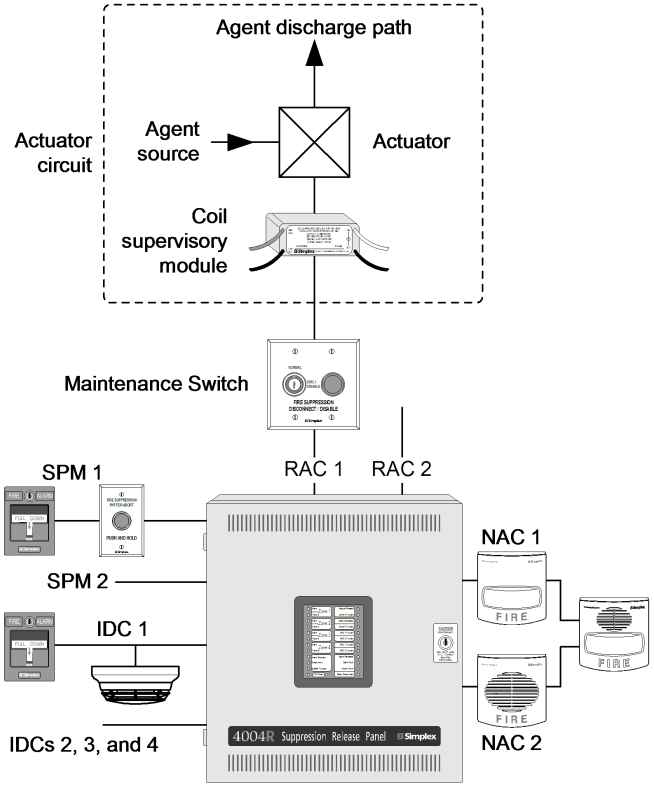
Listed to:

- UL Standard 864 and ULC Standard S527

Introduction

Dedicated for Suppression Release. 4004R Suppression Release Panels provide conventional fire alarm control circuits and are equipped with the features required for a wide variety of single or dual hazard suppression release applications. Capabilities include automatic extinguishing agent release and deluge and preaction sprinkler control.

Figure 1: 4004R Suppression Release Panel One-Line System Reference Drawing



4004R Suppression Release Panel

Flexible I/O Capabilities. Four IDCs allow for either four separately monitored zones or two cross-zoned connections. Two SPMs allow for dedicated manual inputs for release or abort; for waterflow and supervisory, or release/abort and pressure, depending on system type. Two releasing appliance circuits (RACs) supervise the actuator coils and activate the actuators when required. The two NACs and the three panel auxiliary relays provide status condition information.

Easy Program Selections. The operator panel has a program mode that allows selection of panel operation type and detailed operating selections using an easily selected sequential programming operation.

History Log. The last 50 events are stored in non-volatile memory. This information is accessed by connecting a technician's computer to the service port which is also used to set the date and time.

Panel Feature Description

Operator Panel. The operator panel has alarm and trouble status indicating LEDs for each input and output, visible through the locking cabinet door (see Operator Panel Function). Unlocking the door provides access to the Acknowledge, Alarm Silence, and System Reset push button switches.

(Refer to Specifications for more information.)

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:314 for allowable values and/or conditions concerning material presented in this document. Additional listings may be applicable; contact your local product supplier for the latest status. Listings and approvals under Time Recorder Co. are the property of Tyco Fire Protection Products Westminster.

Four Class B IDCs provide coverage for either two cross-zoned areas or four separately zoned areas. IDCs are capable of supporting up to 30 Simplex current-limited smoke detectors or electronic heat detectors (see Reference Information, Compatible Simplex Detectors and other System Components) as well as manual stations and other compatible contact closure initiating devices. IDCs are capable of Class A operation with an optional adapter module and can be programmed as Style C (short or open initiates a trouble) for use with current limited devices only. Single hazard agent release applications monitor pressure switches with IDC 3 and tamper switches with IDC 4. For details about device compatibility with third party detectors, please refer to *579-832 Two Wire Compatibility Chart.*

Two Class B Special Purpose Monitoring Circuits (SPMs) are dedicated for manual release or abort, waterflow and supervisory, or release/abort and pressure, depending on system type. Inputs are normally open switches. An abort switch stops release while activated and upon deactivation, the release operation occurs after a selectable time delay. Manual release inputs override abort switches and activate the release after selectable delays from 0 to 30 seconds in 5 second increments. For Dual Hazard applications, current limited abort operation is required. SPMs are programmable as Style C and capable of Class A operation with the optional adapter module.

Two Class B NACs are provided for reverse polarity, notification appliance operation, each rated 2 A. Class A operation is available with the optional adapter module. NAC operation is selectable per application. Synchronized strobe operation requires a separate 4905 Series Strobe Synchronization Module (see Product Selection), and a continuous, steady-on (non-coded) input from the NAC.

Two Class B Releasing Appliance Circuits (RACs). Rated 2 A each, these circuits are dedicated to operating release control actuators. RAC cutout timing is selectable as no cutout, 45 seconds, or 1, 3, 3.5, 4, 5, 6, 7, 21, 25, 34, 44, or 64 minutes. For bell/horn/strobe single hazard applications, RAC 2 functions as a third NAC (NAC 3).

Auxiliary Power Output. Two sets of output terminals are provided, one for continuous operation and the other for resettable operation, rated for 750 mA combined. Resettable terminals are provided for 4-wire smoke detector power. When using third party devices not listed on the *Two Wire Compatibility Chart* that require a separate 24 VDC supply, the maximum inrush current of the devices must be taken into consideration.

Standard Panel Auxiliary Relay Outputs. Three relay outputs are available, selectable as normally open or normally closed, rated 2 A at 30 VDC, 0.35 p.f. inductive:

Aux Relay 1 (Trouble) is energized when Normal and is de-energized with a common Trouble condition.

Aux Relays 2 and 3 respond differently depending on the system type and whether single or dual hazard. Typical functions are:

For Single Hazard Operation, Aux Relay 2 is the common Alarm relay. Aux Relay 3 can be selected to indicate pre-discharge (release time delay started), common supervisory, waterflow, or pressure switch relay, depending on the system type.

For Dual Hazard Operation, Aux Relay 2 is for Hazard Area 1 common Alarm; Aux Relay 3 is for Hazard Area 2 common Alarm.

Power Supply and Battery Charger. During alarm, the power supply provides 3 A at 25.5 VDC, filtered and regulated. The temperature compensated battery charger provides 27.5 VDC for charging batteries up to 12.7 Ah, suitable for up to 90 hour standby and 10 minutes of alarm. A 4081 Series external battery cabinet with charger can be used for more battery backup (see battery selection below).

Expansion Modules and Accessories

Auxiliary Relay Module 4004-9860 provides four additional relays. Dual hazard applications will require two modules for auxiliary relay operation. Each relay module has a manual disconnect switch that controls relays 2 through 4. Trouble Relay 1 is not controlled. Relay outputs are required to be connected to a 15 A maximum circuit breaker. Relay specifications are detailed in Specifications .

Auxiliary Relay Module Operation:

Relay 1 activates on a common **trouble** associated with its hazard or a system trouble.

Figure 2: Abort Switch



Figure 3: Maintenance Switch



Relay 2 activates on a common **alarm** associated with its hazard.

Relay 3, selected for original operation, activates for pressure switch, waterflow switch, or release timer as required per application type (hazard specific), or activates with the second zone for cross-zoned systems (hazard specific). "Original" operation allows direct panel replacement if required.

Relay 3, selected for enhanced operation, (software 4.01 or higher), activates to indicate pre-discharge, supervisory, or waterflow (application specific).

Relay 4 activates when the hazard specific RAC activates or with pressure switch input (application specific).

Dual Circuit Class A Adapter Module 4004-9864. This module converts two Class B circuits to Class A operation. It consumes no additional current and is compatible with IDCs, SPMs, and NACs. Up to four modules may be mounted within the 4004R cabinet.

Abort Switches. For manual abort requests, these abort switches are available with or without a built-in 1.2 kΩ, 1 W resistor and are mounted on single-gang stainless steel plates. Abort switches are connected to the SPM inputs per system requirements.

Activity abort occurs while the switch is pushed and continues after releasing the switch for the selected Abort Release Time Delay. See drawing below.

Maintenance Switch. Proper service of release appliance circuits requires the ability to securely disconnect the release circuit during installation and maintenance. Simplex maintenance switches are controlled by keyswitch and initiate a supervisory condition when in disconnect/disable position. Models with lamp are on a double-gang plate and are powered from separate 24 VDC wiring. Mounting is on stainless steel plates and models are available as either surface or flush mount. See drawing below.

For additional Maintenance and Abort Switch information refer to data sheet *S2080-0010*.

Product Selection

Table 1: Release Control Panels

Model	Color	Listings	Description
4004-9301	Beige	UL, ULC, FM, CSFM	Basic Releasing Panel; operates with AC input of: 120/220/230/240 VAC, 50/60 Hz (auto-select); includes: four IDCs, two NACs, two SPMs, two RACs, 3 auxiliary relays, 3 A power supply with battery charger, and NEMA 1/IP30 rated cabinet and door
4004-9302	Red	UL, ULC, FM, CSFM, & MEA (NYC)	

Table 2: Expansion Modules

Model	Description	Reference	
4004-9860	Auxiliary Relay Module; four dual contact relays selectable as N.O. or N.C.; rated 7 A at 120 VAC resistive, 5 A at 30 VDC, 0.35 p.f. inductive; unsupervised contacts	Two maximum	Select as required
4004-9864	Two Circuit Class A Adapter Module for IDCs, SPMs, or NACs	Four maximum	

Table 3: System Batteries

Model	Description	Reference
2081-9272	6.2 Ah battery, 12 V	These batteries can be mounted in the 4004R cabinet; select one battery model per system standby requirements; two batteries are required; for more capacity refer to data sheet *S4081-0001* for a compatible external battery cabinet with charger
2081-9274	10 Ah battery, 12 V	
2081-9288	12.7 Ah battery, 12 V	These batteries can be mounted in the 4004R cabinet; select one battery model per system standby requirements; two batteries are required; for more capacity see data sheet *S4081-0001* for a compatible external battery cabinet with charger

Table 4: Release Control Systems Accessories

Model	Description
2081-9046	Coil Supervision Module, one required per RAC; see Compatible UL Listed Valves and Actuators and FM Approved Water Control Valves for details
2081-9048	Abort Supervision Module; encapsulated 560Ω, 1/2 W resistor; for Dual Hazard SPM; allows non-current limited Abort and Manual Release stations to be on same circuit; see Compatible UL Listed Valves and Actuators and FM Approved Water Control Valves for details
4081 Series	End-of-Line Resistor Harnesses; refer to data sheet *S4081-0003 4081 Series End-of-Line Resistor Harnesses*
2099 Series	Manual Stations for Releasing Applications; refer to data sheet *S2099-0010 Non-Coded Manual Stations for Releasing Applications*
4905-Series	Strobe synchronization modules; 4905-9914 for Class B, 4905-9922 for Class A; refer to data sheet *S4905-0003 SmartSync Control Module Strobe Synchronization Modules*

Reference Information, Compatible Simplex Detectors and other System Components

Table 5: Reference Information, Compatible Simplex Detectors and other System Components

Model	Type		Data Sheet
4098-5602	Photo-Heat detector listed to UL	Compatible with bases 4098-5207, 4098-5261, 4098-5680, and 4098-5682	*S4098-0059*
4098-5604	Photo-Heat detector listed to ULC		
4098-5601	Photo detector listed to UL		
4098-5603	Photo detector listed to ULC		
4098-5610	Heat detector at a 135°F or 57.2°C fixed temperature and rate-of-rise		
4098-5611	Heat detector at a 135°F or 57.2°C fixed temperature		
4098-5612	Heat detector at a 200°F or 93.3°C fixed temperature		
4098-5613	Heat detector at a 200°F or 93.3°C fixed temperature and rate-of-rise		
2099-9149	Standard	Manual Release Station with selectable release labels; double action push, N.O. contact	*S2099-0010*
2099-9152	Style C, with 560 Ω internal resistor		
2080-Series	Maintenance Switches, flush or surface mount; indicator lamps require 24 VDC wiring		*S2080-0010*
	Abort Switches, surface or flush mount; available standard or with 1.2 kΩ, 1 W resistor		
4098-Series	Ionization Smoke Detectors; 2-wire and 4-wire models		*S4098-0018*

Programming Modes and Selection Choices

Sequence	Select one of 13 Application Modes (numbered 1 through 13 in italics)					
1	Agent Release	Single Hazard		Cross-Zoned	*1*	Combined Release (RACs activate together)
				Either Zone	*2*	
		Dual Hazard		Cross-Zoned	*3*	Independent Release (RACs are separate)
				Either Zone	*4*	
	Preaction/Deluge	Single Hazard		Cross-Zoned	*5*	Combined Release (RACs activate together)
				Either Zone	*6*	
		Dual Hazard		Cross-Zoned	*7*	Independent Release (RACs are separate)
				Either Zone	*8*	
	Agent Release; Single Hazard	Cross-Zoned	*9*	NYC Abort (not UL listed)		
	Agent Release and Preaction; Single Hazard	Cross-Zoned	*10*	RAC 2 provides Preaction Control		
		Either Zone	*11*	RAC 1 is Agent Release Control		
	Agent Release, Bell/Horn/Strobe; Single Hazard	Cross-Zoned	*12*	RAC 2 operates as NAC 3 for Stage 1 Bell Control (separate sound from release alarm)		
		Either Zone	*13*			

Sequence	Programming Mode Description		Description	
2	Select Relay Operation for Application Modes 1-9		Select "Original" operation mode or "Enhanced" mode (see Expansion Modules and Accessories for further information)	
3	IDC and SPM Circuit Style		Class B/Class A or Style C	
4	Automatic Release Time Delay		Selectable in 5 second increments from 0 to 60 seconds (default is 60 seconds)	
5	RAC Cutout Timer		No cutout, 45 seconds, or 1, 3, 3.5, 4, 5, 6, 7, 21, 25, 34, 44, or 64 minutes	
6	Manual Release Time Delay		0, 5, 10, 15, 20, 25, or 30 seconds	
7	Abort Release Time Delay		UL Standard 864 listed	Immediate or 10 seconds remaining
			Not UL Standard 864 listed	**IRI abort (cross-zoned systems only), NYC abort, or original release delay**
8	NAC Coding (where selectable)		Temporal pattern or 20 beats per minute (first cross-zone alarm)	
9	NAC Operation	Standard Operation	No inhibit or one minute inhibit selected as: both on until silence, NAC 1 on until reset and NAC 2 on until silence, or both on until reset	
		Pre-Discharge Operation	**Note:** For Halon 1301, Halon 1211, or clean agent release, a pre-discharge NAC must be configured to warn of impending discharge, the release timer selects the duration of the pre-discharged signal	
10	Supervisory Latching		Latching or non-latching	
11	Supervisory Notification		LED and tone-alert only, or with: NAC 2 also on; Aux Relay 3 also on; or both NAC 2 and Aux Relay 3 also on	

Release Control System

Note: Proper operation of release control systems requires that the system design, installation, and maintenance be performed correctly and in accordance with all applicable local and national codes, and equipment manufacturer's instructions. No liability for total system operation is assumed or implied.

Automatic Extinguishing Release Systems automatically activate actuators for the release of a fire extinguishing agent (for instance, dry chemical, water spray, foam, CO2 or Clean Agent) in response to fire detection device input.

Automatic Extinguishing Release Systems with Separate Bell Control (single hazard) (SW rev. 4.01 or higher). RAC 2 operates as a bell control NAC. When cross-zoned, stage 1 alarm activates the bell until the release timer starts. When not cross-zoned, stage 1 alarm activates the bell until expiration of the release timer. In both cross-zoned and non cross-zoned applications, NAC 2 may be programmed to indicate either a tamper switch supervisory condition or the start of the release timer using a cadence pattern operation.

UL and FM Extinguishing Release System Panels must have a minimum of 24 hours of standby power. Initiating devices must be Listed/Approved for the application, and may be wired either Class A or B. Actuators must be electrically compatible with the control panel circuits and power supplies, and are wired Class B to provide coil supervision. See Release Control System Requirements.

Deluge and Preaction Sprinkler Systems automatically activate water control valves in response to fire detection device input.

Deluge Sprinkler Systems employ open sprinkler heads and provide water flow when the fire detection system activates a common automatic water control valve. They are used to deliver water simultaneously through all of the open sprinkler heads. This type of system is applicable where the immediate application of large quantities of water over large areas is the proper fire response.

Preaction Sprinkler Systems are similar to deluge systems except that normally closed sprinkler heads are used and supervisory air pressure is maintained in the pipe. Operation requires both an activated sprinkler head and an activated fire alarm initiating device.

Combined Agent Release and Preaction Systems provides agent release and preaction control. Available with software revision 4.01 or higher. For applications where agent release may not be sufficient for fire control, sprinklers are put in preaction mode to allow waterflow to continue the fire response. Preaction is assumed. The sprinkler installation determines the selected deluge. Panel operation is the same.

UL requirements for Fire Alarm Systems Listed for Automatic Release or Deluge and Preaction Sprinkler Systems are the same as described above for Automatic Extinguishing Release Systems.

FM Approved requirements for Fire Alarm Systems for Automatic Release of Deluge and Preaction Sprinkler Systems require operation of specific compatible FM Approved Automatic Water Control Valves, a minimum secondary power capacity of 90 hours, and all circuits for the automatic release initiating devices must be capable of operation during a single open circuit fault condition (Class A).

Release Control System Requirements

1. Actuators are connected as two-wire, Class B notification/releasing circuits with only one 24 VDC actuator per circuit to ensure supervision. Where applicable, two 12 VDC actuators in series, or one 12 VDC actuator and a manufacturer supplied series resistor may be used.
2. Coil Supervision Module, model 2081-9046, must be wired electrically before the actuator and located in the actuator wiring junction box. (See 4004R System Connection.)
3. For UL Listed Automatic Extinguishing Release valves and actuators, refer to Compatible UL Listed Valves and Actuators.
4. For FM Approved Automatic Extinguishing Release, secondary standby must be a minimum of 24 hours with 5 minutes of alarm. Actuators must be electrically compatible.
5. For FM Approved Deluge and Preaction Sprinkler operation: IDCs must be Class A, wired to Listed/Approved devices; secondary standby capacity must be a minimum of 90 hours with 10 minutes of alarm; and the specified compatible Automatic Water Control Valves/Actuator must be used. (See FM Approved Water Control Valves.)
6. Power supply loading and wiring distances must be per *4004R Fire Alarm Installation, programming, and operating instructions 579-354*.
7. Battery standby must be selected for proper actuator operation and may require a minimum voltage of 23 VDC depending on the actuator. Detailed battery calculation reference information is contained in *4004R Fire Alarm Installation, programming, and operating instructions 579-354*.
8. Maintenance Switches, one per RAC, are required per NFPA 72, the *National Fire Alarm and Signaling Code*, to allow the system to be tested or serviced without actuating the fire suppression systems. When used, Simplex Maintenance Switches are required to ensure that operation initiates a supervisory condition.

   Note: Use of Maintenance Switches may not be allowed in some jurisdictions, always confirm local requirements.

Additional System Device Information

1. Simplex Abort Switches are available when abort operation is required. When used, wire on Special Purpose Monitoring Circuits (SPMs) as Class A or Class B; Simplex model Abort Switches are required.
2. Manual Release Stations are used for direct activation of the release actuators with the appropriate time delay implemented by the fire alarm control panel.

Additional Information

This data sheet is a summary of the extensive operating features and options available with the 4004R Release Control Panel. Complete details are covered in the *4004R Installation, Programming, and Operating Instructions* manual (publication 579-354) shipped with each 4004R. Compatible system devices are listed in Reference Information, Compatible Simplex Detectors and other System Components. For general information, refer to *Factory Mutual Research Corporation (FMRC) "FMRC Approval Guide," FM Approval standard "Deluge Systems and Preaction Systems."*

Specifications

See 4004R System Connection and refer to Instructions 579-354 for additional information.

Table 6: Power Ratings

Specifications		Rating
AC Input	Voltage Ratings	120 VAC, 60 Hz; 220/230/240 VAC, 50/60 Hz, auto-select
	Current Ratings	2 A maximum at 120 VAC input; 1 A maximum at 240 VAC input
Power Supply Output		3 A maximum available for external loads
Battery Charger		Temperature compensated, capable of recharging batteries required for 90 hour standby and 10 minute alarm (contingent on auxiliary power load)
Standby Current		100 mA; with IDCs fully loaded, tone-alert silenced, trouble LED on, charger off
Alarm Current		264 mA + external loads; (2 zones in alarm and 2 internal relays, NACs and RACs on)

Table 7: Standard Circuit Ratings

Circuit	Rating	Current
Initiating Device Circuits (IDCs)	Supervisory	3 mA maximum; 3.3 kΩ end-of-line resistor per circuit
	Alarm Current	75 mA maximum
	Output Voltage	28 VDC maximum
	Capacity	Each IDC supports up to 30 detectors (smoke or electronic heat) and manual stations as required; wiring distance is limited to 50 Ω maximum

Table 7: Standard Circuit Ratings

Circuit	Rating	Current
Special Purpose Monitoring Circuits (SPMs)	Application	For Manual Release, Abort Switches, or Supervisory functions only; not for detectors; wiring distance is limited to 50 Ω maximum
	For Dual Hazard Applications	Dual Hazard Application Abort Switches require a current limiting resistor of 1.2 kΩ, 1 W, or an external Abort Supervision Module per SPM
	Supervisory	6 mA; 3.3 kΩ end-of-line resistor per circuit
	Activated	75 mA maximum
	Output Voltage	28 VDC maximum
Notification Appliance Circuits (NACs)	Alarm Current	Special Application appliance rating = 2 A maximum on a NAC **Note:** Special Application appliance rating = full 3 A power supply rating
		Regulated 24 DC appliance power = 1.5 A maximum on a circuit **Note:** Regulated 24 DC **strobe** load = 1.35 A maximum total for power supply
	Output Voltage	Alarm = 26 VDC max.; supervisory = 29 VDC maximum; 10 kΩ end-of-line resistor
	Synchronized Strobe Operation	Requires NAC dedicated to strobe control with non-coded output; use an external Synch Module (4905-9914, Class A, or 4905-9922, Class B, see data sheet *S4905 -0003* for details); up to 33 strobes can be synchronized per 4004R
Notification Appliance Reference	Special Application Appliances	Simplex, 4901 Series horns, 4904 and 4906 Series strobes, 4903 Series 4-wire horn/strobes; refer to Installation Instructions 579-354 for additional details
	Regulated 24 DC Appliances	Power for other appliances listed to UL Standard 1971 or UL Standard 464; use associated external synchronization modules where required
Release Appliance Circuits (RACs)	Output Current	2 A maximum per circuit
	Output Voltage	Activated = 26 VDC maximum; non-alarm = 29 VDC maximum; 10 kΩ end-of-line resistor
Auxiliary Power Output; for Special Application loads only		Two outputs are available, continuous operation or resettable operation; combined output is 750 mA maximum; output voltage = 19.25 VDC to 27 VDC
Auxiliary Relay Outputs (Trouble, Aux Relay 2, Aux Relay 3)		Contacts rated 2 A at 30 VDC, 0.35 p.f., inductive, selectable as N.O. or N.C. by jumper
Wiring Connections for Above and AC Input		Terminals rated for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Note: Total DC current = 3 A maximum; see NAC ratings for details		

Table 8: Auxiliary Module Ratings

Module		Rating
Class A Adapter Module 4004-9684		Two circuits per module, rated same as circuits; not applicable to RACs (no additional current required)
Auxiliary Relay Module 4004-9860	Relay Type	Four relays with two outputs per relay; individually selectable as N.O. or N.C.
	AC Ratings	7 A at 120 VAC, resistive
	DC Ratings	5 A at 30 VDC, 0.35 power factor, inductive
	Module Current	12 mA standby; 70 mA with all four relays energized; at 24 VDC
	Wiring	Terminals rated for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2)

Table 9: 2081-9046 Coil Supervision Module and 2081-9048 Abort Supervision Module

Specification	Rating
Construction	Epoxy encapsulated
Dimensions	1 3/8 in. W x 2 7/16 in. L x 1 1/16 in. H (34 mm x 62 mm x 27 mm)
Wiring	18 AWG (0.82 mm^2) wire leads, color coded
Coil Supervision Module Current Rating	2 A maximum; internally fused at 3 A, non-replaceable
Abort Supervision Module Resistance	560 Ω, 1/2 W

Table 10: Environmental Ratings

Specification	Rating
Operating Temperature Range	32°F to 120°F (0°C to 49°C)
Operating Humidity Range	up to 93% RH, non-condensing @ 100.4°F (38°C) maximum

Compatible UL Listed Valves and Actuators

MFG.	SKU Number	Coil Details	MFG.	SKU Number
A N S U L	*AUTOMAN II-C Assembly (solenoid 17728; coil 25924)	12 VDC, 458 mA	ASCO	8210A107 (097617-005D coil) 0.5 in. NPS, 0.625 in. orifice, 24 VDC
	AUTOMAN II-C Explosion-Proof Releasing Device (solenoid 31492; coil 31438)	24 VDC, 467 mA		8210G207 (238310 coil) 0.5 in. NPS, 0.5 in. orifice
	*AUTOMAN II-C Assembly (solenoid 68739; coil 25924)	12 VDC, 458 mA		8211A107 (097617-005D coil) 24VDC
	Solenoid Electric Actuator (solenoid 73111; coil 73097)	24 VDC, 1 A		HV2628571 (23810 coil) N.C. 0.5 in. NPS, 0.5 in. orifice
	*CV90 HF Electric Actuator 73327 (may use 73606 in-line resistor)	9 VDC max, 450 mA		HV2648581 (23810 coil) N.O. 0.5 in. NPS, 0.5 in. orifice
				R8210A107 (097617-005D coil) 0.5 in. NPS, 0.625 in. orifice
	LP CO2 w/ASCO solenoid 422934	24 VDC, 442 mA		T8210A107 (097617-005D coil) 0.5 in. NPS, 0.625 in. orifice
	LP CO2 double action 24 VDC solenoid 430948	24 VDC, 438 mA	Pyro-Chem	ECH Electrical Control Head (551201)
	LP CO2 3-way selector valve solenoid 433419	24 VDC, 438 mA		Explosion-Proof Electric Actuator (570147)
	Electric Actuator 24 VDC solenoid 570537	24 VDC, 250 mA		Removable Electric Actuator (570209) 0.2 A
LPG	Solenoid 26114002 for Solenoid Coupling Assemblies: 21006401 & 21006402; & LPG128/145/190/230-50/55 FM-200 valves; and LPG128-90UL iFLOW & FM-200 valves	24 VDC, 542 mA	Star Sprinkler	SKU D deluge valve, with solenoid 5550
			Hygood	304.205.010 – Electrical Actuator Suppression Diode 304.209.001 – Electrical Actuator Bridge Rectifier
			Minimax	SKU MX1230 without diode, 24 VDC, 0.5 in. NPT
Skinner	71395SN2ENJ1NOH111C2 (Skinner coil H111C2) 0.25 in., NPS, 0.0625 in.			* 12 VDC coils, either wire two in series for 24 VDC activation, or, if available from manufacturer, use series resistor
	73212BN4TN00NOC111C2 (Skinner coil C111C2) 0.5 in., 5-300 psi			
	73212BN4TNLVNOC322C2 (Skinner coil C322C2) 0.5 in., NPS, 0.92 A, 250 psi			
	73218BN4UNLVNOH111C2 (Skinner coil H111C2)			
	73218BN4UNLVNOC111C2 (Skinner coil C111C2) 0.5 in., NPS, 0.625 in. orifice			

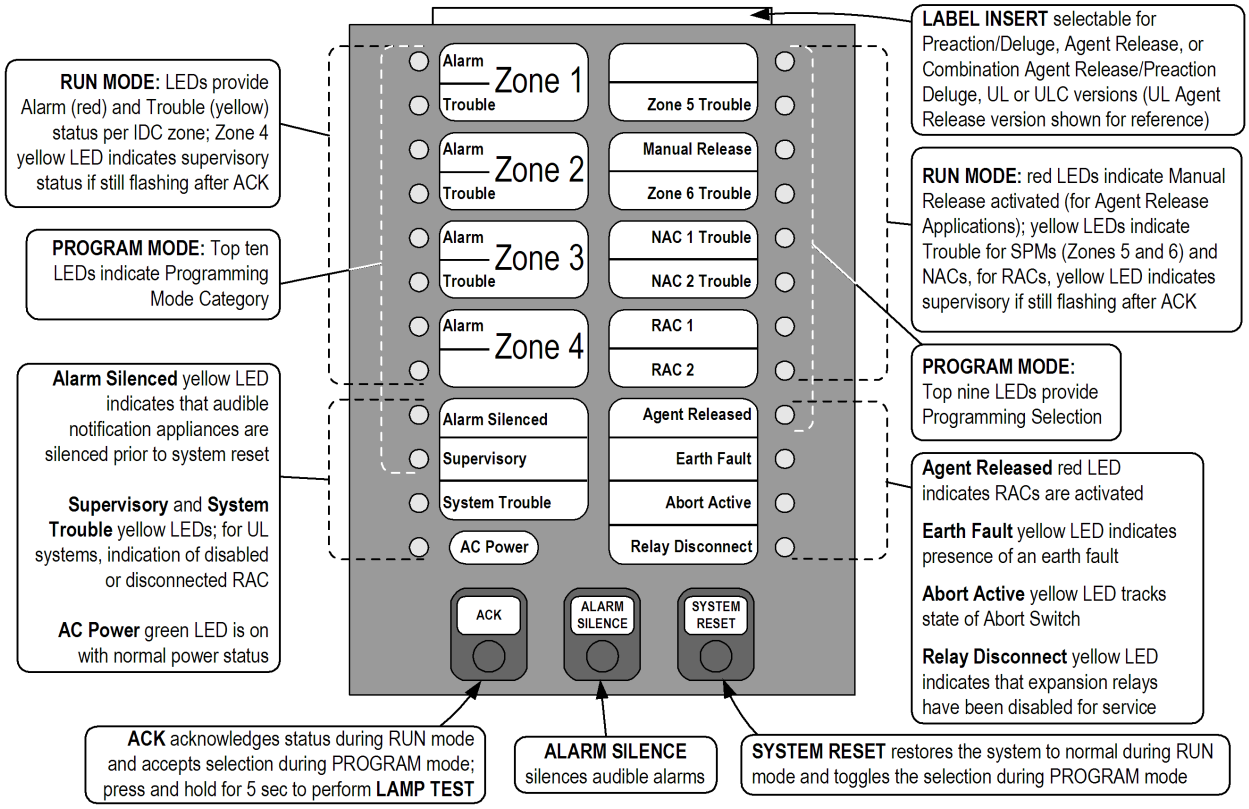
* For new applications, LV2LBX25 has been replaced by model number 73218BN4UNLVNOC111C2.

FM Approved Water Control Valves

Group	Manufacturer	SKU Number	Details	
A	Skinner	LV2LBX25*	24 VDC, 11 W, 458 mA, 0.5 in. NPS, 0.5 in. orifice	
B	ASCO	T8210A107	24 VDC, 16.8 W, 700 mA, 0.5 in. NPS, 0.625 in. orifice	
		R8210A107		
		8210A107		
C	Star Sprinkler	5550	24 VDC, part of Model D deluge valve	
D	ASCO	8210G207	24 VDC, 10.6 W, 440 mA, 0.5 in. NPS, 0.5 in. orifice	
E	Skinner	73218BN4UNLVNOC111C2*	24 VDC, 10 W, 420 mA, 0.5 in. NPS, 0.625 in. orifice	
		73212BN4TN00N0C111C2	24 VDC, 10 W, 420 mA, 0.5 in. NPS, 0.625 in. orifice; 5-300 psi	
F	Skinner	73212BN4TNLVNOC322C2	24 VDC, 22 W, 0.5 in. NPS, 920 mA, 250 psi (1725 kPa), 0.5 in. orifice	
G	Skinner	71395SN2ENJ1NOH111C2	24 VDC, 10 W, 420 mA, 0.25 in. NPS, 0.0625 in. orifice, 250 psi (1725 kPa) rated working pressure	
I	Victaulic	Series 753-E solenoid valve	24 VDC, 8.7 W, 0.5 in. NPS, 364 mA, 300 psi (2069 kPa), 0.5 in. orifice	
J	Viking	11591 and 11592	Normally closed (NC)	Explosion proof solenoid valves, 24 VDC, 10 W, 0.5 in. NPS, 300 psi (2069 kPa), 4.1 Cv
		11595 and 11596	Normally open (NO)	
K	Viking	11601 and 11602	NC solenoid valve, 24 VDC, 9 W, 0.5 in. NPS, 250 psi (1725 kPa), 6.2 Cv	

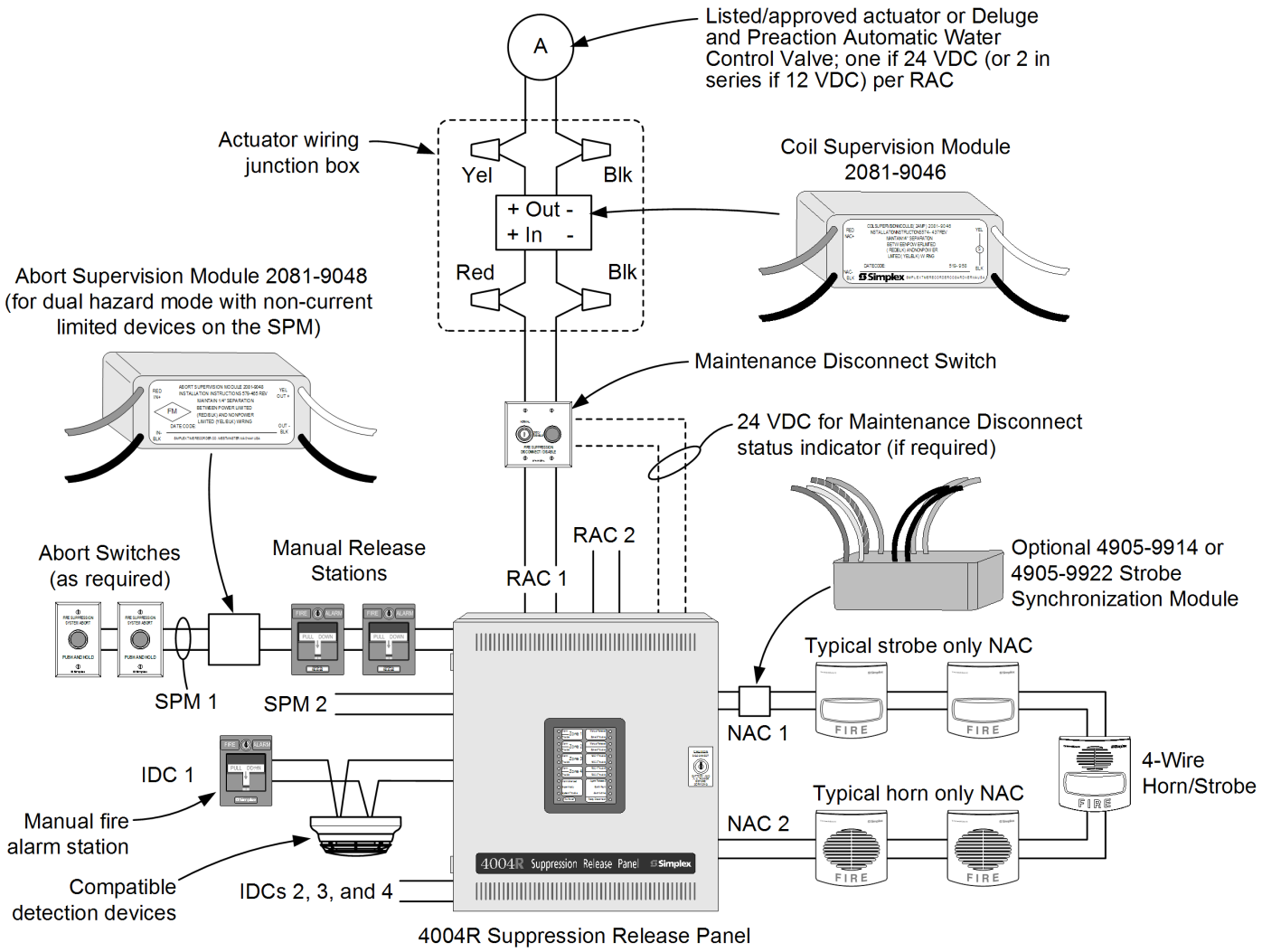
Operator Panel Function

Figure 4: Operator panel function reference



4004R System Connection

Figure 5: 4004R system connection reference



GENERAL WIRING NOTE:
Wiring shown is for reference only, refer to installation instructions for detailed wiring information.

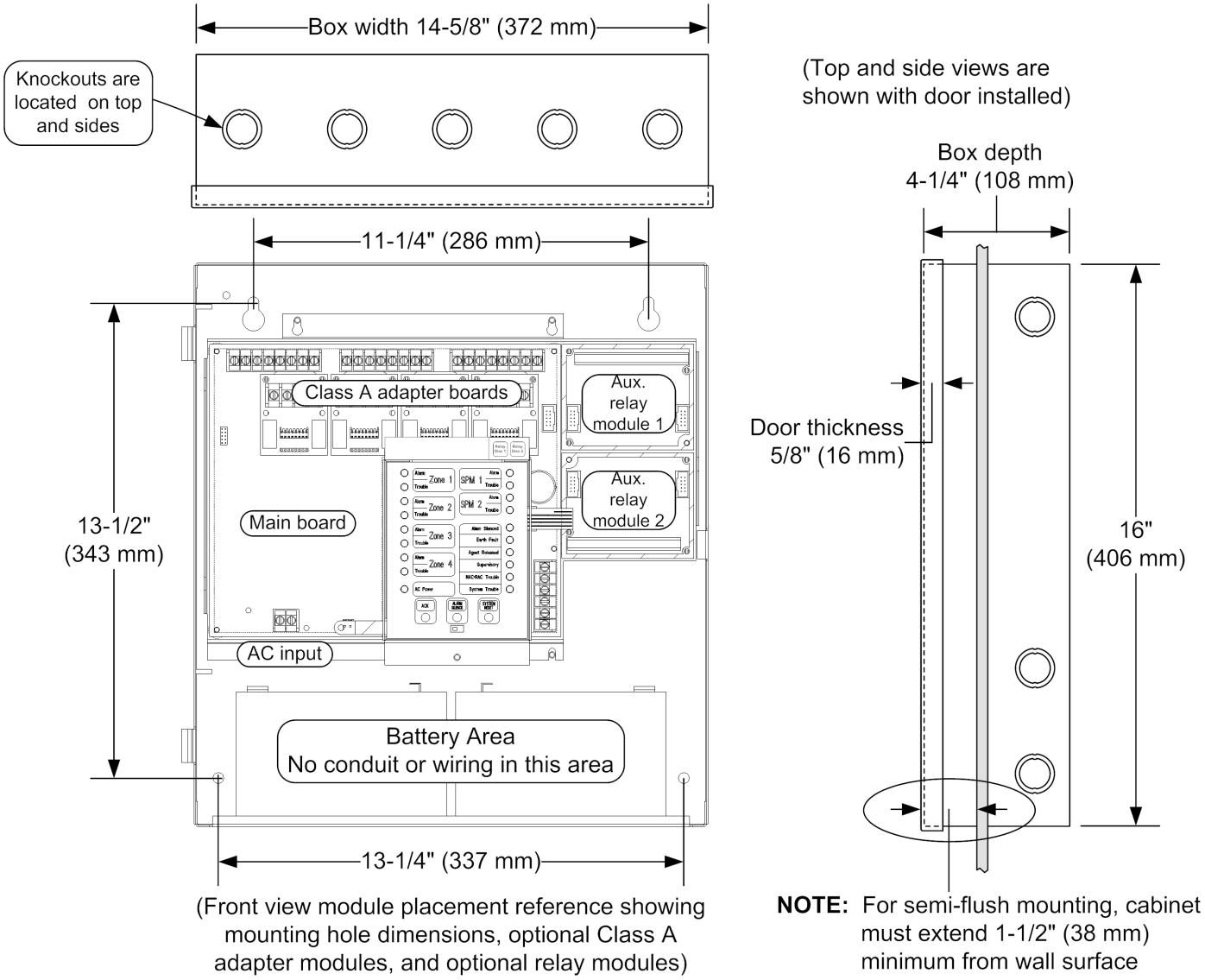
* The 2081-9048 Abort Supervision Module is shown.

** There are two Optional Strobe Sychronization Modules: 4905-9914 or 4905-9922.

*** The 2081-9046 Coil Supervison Module is shown.

Mounting Reference Information

Figure 6: Mounting reference information



Note: A system ground must be provided for Earth Detection and transient protection devices. This connection shall be made to an approved, dedicated Earth connection per NFPA 70, Article 250, and NFPA 780.

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