Release Control Fire Alarm Systems

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

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 valves and 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 & 2 indicate release as On Steady

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

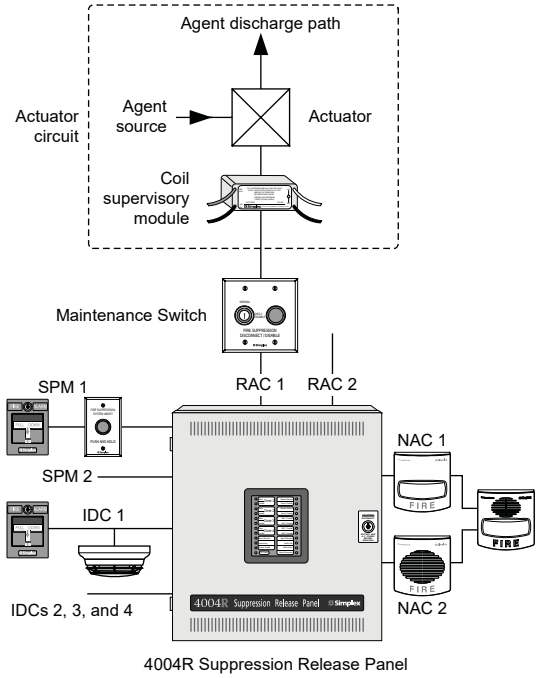
Listed to

- 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.

** Requires Software Revision 4.01 or higher.



4004R Suppression Release Panel
One-Line System Reference Drawing

Introduction *(Continued)*

Flexible I/O Capabilities. Four IDCs allow for either four separately monitored zones or two, cross-zoned connections. Two SPMs allow 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 to 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 (refer to diagram on page 4). Unlocking the door provides access to the Acknowledge, Alarm Silence, and System Reset pushbutton switches.

* 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 Simplex® product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products Westminster.

Panel Feature Description *(Continued)*

(Refer to specifications on page 6 for more information.)

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 list on page 2) 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.

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 of 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 below), 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.

Standard Panel Auxiliary Relay Outputs. Three relay outputs are available, selectable as normally open or normally closed, rated 2 A @ 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).

Product Selection

Release Control Panels

Model	Color	Listings	Description
4004-9301	Beige	UL, ULC, CSFM, & FM	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, CSFM, FM, & MEA (NYC)	

Expansion Modules

Model	Description	Reference	
4004-9860	Auxiliary Relay Module; four dual contact relays selectable as N.O. or N.C.; rated 7 A @ 120 VAC resistive, 5 A @ 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	

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 see 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	

Release Control Systems Accessories (refer to additional information listed on page 3)

Model	Description
2081-9046	Coil Supervision Module, **one required per RAC**; refer to pages 6 and 7 for detail
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; refer to pages 6 and 7 for detail
4081 Series	End-of-Line Resistor Harnesses; refer to data sheet S4081-0003
2099 Series	Manual Stations for Releasing Applications; refer to data sheet S2099-0010
4905-Series	Strobe synchronization modules; 4905-9914 for Class B, 4905-9922 for Class A; see data sheet S4905-0003 for details

Reference Information, Compatible Simplex Detectors and other System Components

Model	Type			Data Sheet
4098-9601	Standard detector		Photoelectric smoke detectors for 2-wire and 4-wire bases	S4098-0015
4098-9605	Reduced sensitivity detector			
4098-9602	Combination smoke and heat detector			S4098-0017
4098 Series	Ionization Smoke Detectors; 2-wire and 4-wire models			S4098-0018
4098-9612	135° F (57°C)	Fixed heat detector	Electronic heat detectors for 2-wire and 4-wire bases	S4098-0014
4098-9614	200° F (93°C)			
4098-9613	135° F (57°C)	Fixed with rate-of-rise heat detector		
4098-9615	200° F (93°C)			
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			

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 on page 6.)

Auxiliary Relay Module Operation:

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

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.

Abort Switch

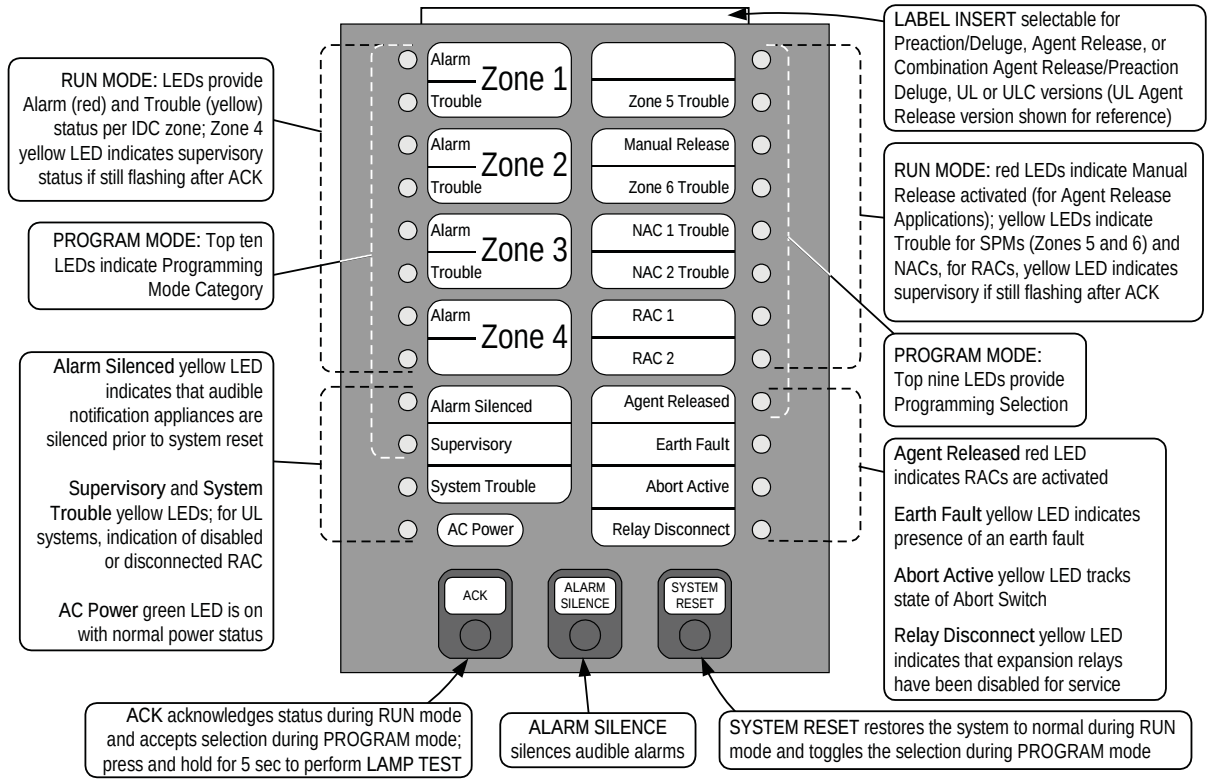
Maintenance Switch

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 & Preaction; Single Hazard	Cross-Zoned		*10*	RAC 2 provides Preaction Control; RAC 1 is Agent Release Control
		Either Zone		*11*	
	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 (refer to Auxiliary Relay 3 information on page 3 for details)
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

Operator Panel Function Reference



Release Control System Reference

Automatic Extinguishing Release Systems automatically activate actuators for the release of a fire extinguishing agent (dry chemical, water spray, foam, CO_2, Clean Agent, etc.) 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, NAC2 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 details in next section.)

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, selected deluge could be provided, determined by the sprinkler installation, 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 per circuit may be used (refer to the actuator manufacturer's installation documentation for additional details and requirements).
2. Coil Supervision Module, model 2081-9046, must be wired electrically before the actuator and located in the actuator wiring junction box. (See diagram on page 7.)
3. For UL Listed Automatic Extinguishing Release valves and actuators, refer to list on page 7.
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 list on page 8.)
6. Power supply loading and wiring distances must be per Installation 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 Installation 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. *Their use may not be allowed in some jurisdictions, always confirm local requirements.* When used, Simplex Maintenance Switches are required to ensure that operation initiates a supervisory condition.

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.
3. See pages 2 and 3 for additional reference information.

Additional Information

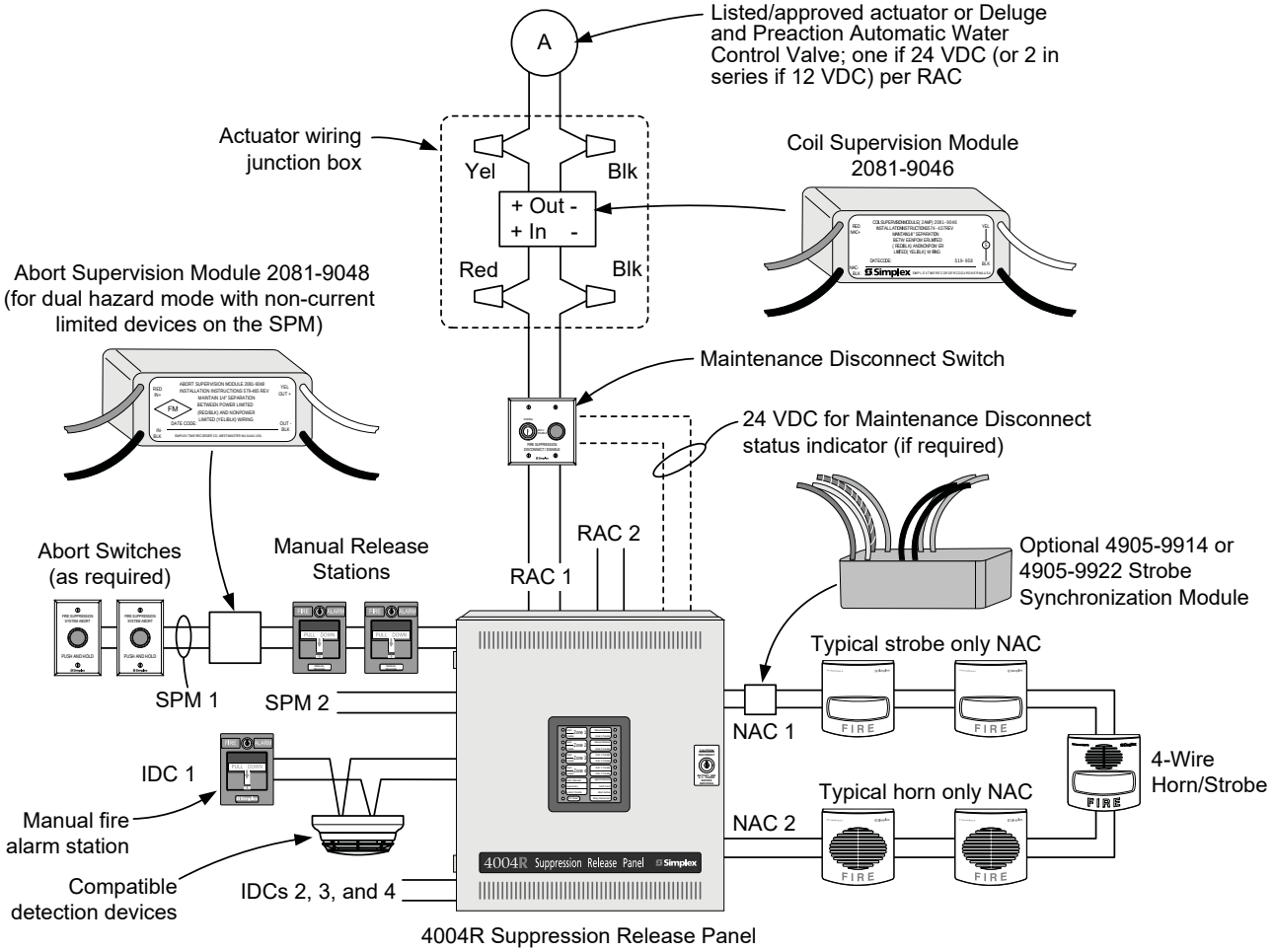
This data sheet is a summary of the extensive operating features and options available with the 4004R Release Control Panel. Complete details are covered in the *4004R Installation, Programming, and Operating Instructions* manual (publication 579-354) shipped with each 4004R. Compatible system devices are listed on page 3. For general information, refer to Factory Mutual Research Corporation (FMRC) "FMRC Approval Guide," FM Approval standard "Deluge Systems and Preaction Systems."

PLEASE 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.*

Specifications (Refer to diagram on page 7 and Instructions 579-354 for additional information)

Power Ratings		
AC Input	Voltage Ratings	120 VAC, 60 Hz; 220/230/240 VAC, 50/60 Hz, auto-select
	Current Ratings	2 A maximum @ 120 VAC input; 1 A maximum @ 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 & 2 internal relays, NACs and RACs on)
Standard Circuit Ratings (**NOTE:** Total DC current = 3 A maximum; see NAC ratings for details)		
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
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 to 27 VDC
Auxiliary Relay Outputs (Trouble, Aux Relay 2, Aux Relay 3)		Contacts rated 2 A @ 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)
Auxiliary Module Ratings		
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 @ 120 VAC, resistive
	DC Ratings	5 A @ 30 VDC, 0.35 power factor, inductive
	Module Current	12 mA standby; 70 mA with all four relays energized; @ 24 VDC
	Wiring	Terminals rated for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2)
2081-9046 Coil Supervision Module and 2081-9048 Abort Supervision Module (see page 7 for additional details)		
Construction		Epoxy encapsulated
Dimensions		1-3/8" W x 2-7/16" L x 1-1/16" 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
Environmental Ratings		
Operating Temperature Range		32° to 120°F (0° to 49° C)
Operating Humidity Range		up to 93% RH, non-condensing @ 100.4° F (38° C) maximum

4004R System Connection Reference



4004R Suppression Release Panel

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

Compatible UL Listed Valves and Actuators

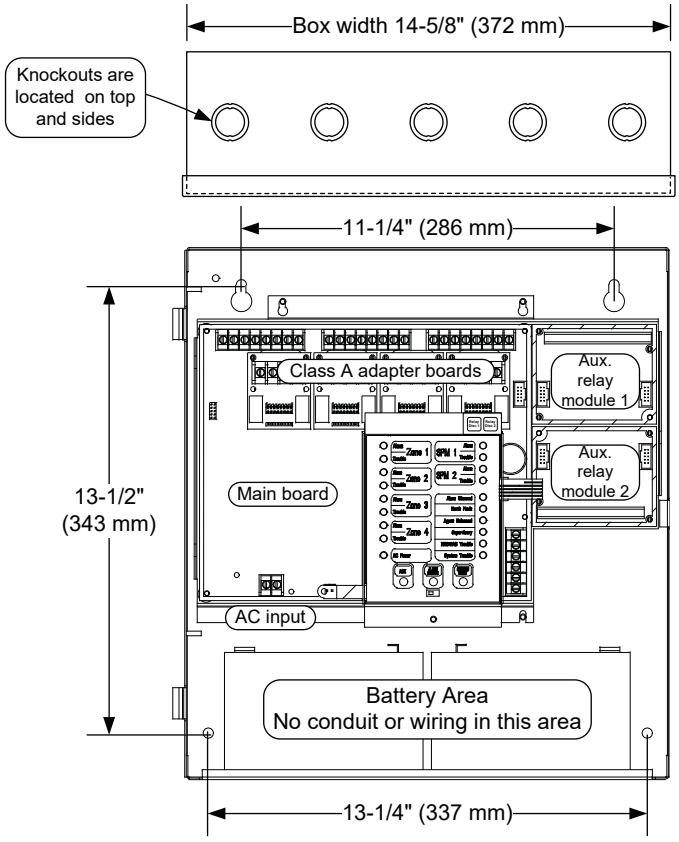
Manufacturer	Model Number	Electrical Ratings
ANSUL	AUTOMAN II-C Assembly (solenoid 17728; coil 25924)	24 VDC, 750 mA
	AUTOMAN II-C Explosion-Proof Releasing Device (solenoid 31492; coil 31438)	24 VDC, 750 mA
	AUTOMAN II-C Assembly (solenoid 68739; coil 25924)	24 VDC, 750 mA
	Solenoid Electric Actuator (solenoid 73111; coil 73097)	24VDC, 1 A
	*CV90 HF Electric Actuator 73327	24 VDC, 570 mA
	LP CO2 w/ASCO solenoid 422934	24VDC, 442 mA
	LP CO2 double action 24 VDC solenoid 430948	24VDC, 438 mA
	LP CO2 3-way selector valve solenoid 433419	24VDC, 438 mA
	Electric Actuator 24 VDC solenoid 570537	24VDC, 250 mA
LPG	Solenoid Electric Actuator (uses solenoid: Flow Control 609500/671S) Solenoid Coupling Assembly 21006401 (uses solenoid: Flow Control 609500/671S) Solenoid Coupling Assembly 21006402 (uses solenoid: Flow Control 609500/671S) LPG128/145/190/230-50/55 FM-200 valves (uses solenoid: Flow Control 609500/671S) LPG128-90UL iFLOW and FM-200 valve (uses solenoid: Flow Control 609500/671S)	24 VDC, 542 mA
ASCO	8210A107 (097617-005D coil)	24 VDC, 750 mA
	8210G207 (238310 coil)	24 VDC, 440 mA
	8211A107 (097617-005D coil)	24 VDC, 750 mA
	8262H182 (238910 coil)	24 VDC, 483 mA
	EF8210G001MBMO	24 VDC, 450 mA
	HV2628571 (23810 coil)	24 VDC, 442 mA
	HV2648581 (23810 coil)	24 VDC, 442 mA
	R8210A107 (097617-005D coil)	24 VDC, 700 mA
	T8210A107 (097617-005D coil)	24 VDC, 700 mA
Hygood (TSP)	304.205.010 – Electrical Actuator Suppression Diode	24 VDC, 250 mA
	304.209.001 – Electrical Actuator Bridge Rectifier	24 VDC, 250 mA
PyroChem	ECH Electrical Control Head (551201)	24 VDC, 1700 mA
	Explosion-Proof Electric Actuator (570147)	24 VDC, 396 mA
	Removable Electric Actuator (570209)	24 VDC, 200 mA
Skinner	71395SN2ENJ1N0H111C2 (Skinner coil H111C2)	24 VDC, 420 mA
	73212BN4TN00N0C111C2 (Skinner coil C111C2)	24 VDC, 420 mA
	73212BN4TNLVN0C322C2 (Skinner coil C322C2)	24 VDC, 830 mA
	73218BN4UNLVN0H111C2 (Skinner coil H111C2)	24 VDC, 410 mA
	73218BN4UNLVN0C111C2 (Skinner coil C111C2)	24 VDC, 410 mA
Star Sprinkler	D deluge valve, with solenoid 5550	Refer to manufacturer's documentation
Minimax	MX1230 without diode	24 VDC, 420 mA
Burkert	5282 2/2-Way Solenoid Valve	24 VDC, 333 mA
Versa	CGS-4292-NB3-S20000	24 VDC, 438 mA
Tyco Safety Products	Model TSP 304205030	24 VDC, 0.5A
	Model TSP 304700001	24 VDC, 830mA
Masteco	Model MSC-01	24 VDC, 1.7 A

* For 24 VDC, 450 mA activation requires one actuator connected in series with a 73866 (21.5 ohm, 23 watt) in-line resistor shipping assembly ordered separately. For additional information refer to the manufacturer's technical documentation.

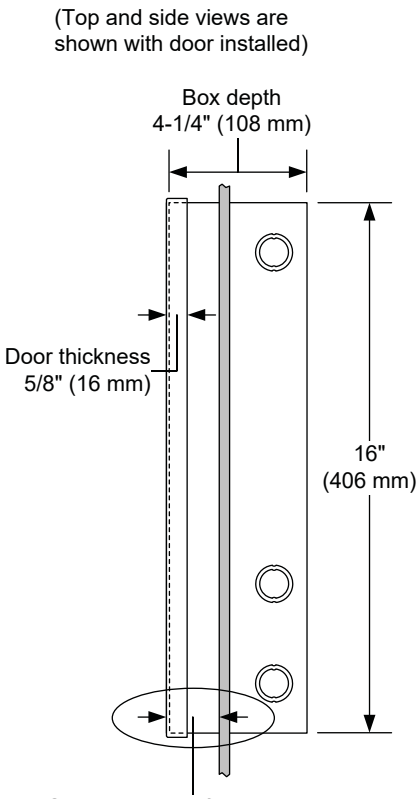
Compatible FM Approved Water Control Valves

4004R Control Panels are assigned to FM Release Control Panel Group 3. Group 3 FM Approved Release Control Panels are compatible with all FM Approved Solenoid Valves rated at 22 Watts or less. For verification of agency listings and power requirements refer to the solenoid valve manufacturer's technical documentation.

Mounting Reference Information



(Front view module placement reference showing mounting hole dimensions, optional Class A adapter modules, and optional relay modules)



NOTE: For semi-flush mounting, cabinet must extend 1-1/2" (38 mm) minimum from wall surface

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.

Simplex

*UL, ULC**

Datasheet

Conventional Smoke and Heat Detectors

Photo-Heat, Photo, and Heat Detectors for Two-Wire and Four-Wire Bases

Features

Note: * UL and ULC approvals are specific to particular Photo and Photo-Heat Detectors SKUs. For details see Table 2.

Figure 1: 4098-5602 Photo-Heat or 4098-5601 Photo detector

Photoelectric detection and Photoelectric with heat detection:

- Stable and reliable photoelectric smoke detection with built-in sensitivity drift compensation
- Correlation of smoke activity and thermal activity providing intelligent fire detection more resilient than with either activity alone

Heat detection:

- Includes both Rate-of Rise and fixed temperature thermistor-based detection.
- Detects abnormally high rates of rising temperatures and abnormally high temperatures respectively.

Functional chamber enclosure:

- Concentric baffle design enhances smoke capture by directing flow to chamber
- Entrance areas are minimally visible when ceiling mounted
- Operation is for ceiling or wall mounting

Multi-function LED indicator:

- Indicates normal and alarm conditions
- Provides status during magnetic functional test

Magnetically operated functional test:

- Initiates alarm and verifies performance
- Identifies general sensitivity status using detector LED pulses
- With detectors categorized as normal or needing cleaning or other service, maintenance priorities can be more easily determined

Available options:

- Bases for 2-wire or 4-wire operation
- Auxiliary alarm relay output
- Remote alarm indicating LED

Designed for EMI compatibility

Photo and Photo-Heat detectors are listed to UL standard 268 Edition 7. Heat detectors are listed to UL standard 521 Edition 7.

Description

Simplex® photoelectric / photoelectric-heat detectors provide many of the proven analog sensing features for applications where detectors are connected to conventional 2-wire or 4-wire initiating device circuits (IDCs). Each detector has an onboard microprocessor that evaluates its photoelectric light scattering chamber activity and makes an intelligent decision based on light scattering history as to whether an alarm condition is present.

Simplex® photoelectric-heat detectors combine photoelectric smoke detection technology and quick response thermistor-based heat detection technology into a sophisticated, intelligent detector that analyzes each of these activities and their combination to determine whether alarm conditions are present. As a result, this microprocessor based analog detection maintains response to conditions indicative of faster acting, hot flaming fires when compared to the response of either photoelectric smoke activity or thermal activity alone, while maintaining the established high level of immunity to false alarms and nuisance alarms that is inherent with the sensor operation

False alarm resistant detection. An onboard microprocessor provides photoelectric detection with sensitivity drift compensation, using either photoelectric or photoelectric/heat trending analysis for alarm detection. If any of these alarm conditions are experienced, an alarm is initiated.

Simplex® heat detectors use a fast response, thermistor based design to provide temperature sensing that quickly, accurately, and consistently identifies when fixed temperatures are exceeded. The fixed temperature sensing thermistor readily tracks the local ambient temperature. This eliminates the time required to melt a lead pellet or heat a bimetallic element as occurs in mechanical heat detector designs and provides the required heat detection for most applications.

Rate-of-rise detection is determined by comparing two thermistor responses. By combining accurate thermistors with proper physical placement, this rate-of-rise detection design achieves a high level of performance not normally available with mechanical detection. Rate-of-rise heat detection occurs at ≥ 20° F/min (11° C/min). To minimize the possibility of false alarms, rate-of-rise detection is correlated to the ambient temperature and is only in effect above 90° F (32° C).

The detectors are packaged in a registered design housing that minimizes the visibility of the air intake louvers from the normal viewing locations while maintaining a high performance smoke capture ability. Bases are available for remote alarm LED indicator connections and auxiliary relay outputs.

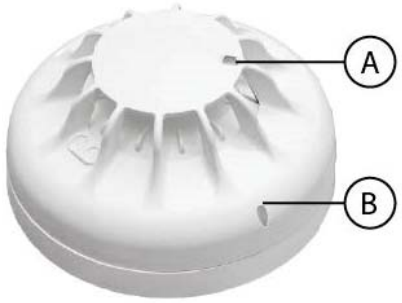


Figure 2: Heat detector

Callout	Description
A	Status indicator, red LED
B	Unlock aperture with a clip on the base to secure the detector into the base.

Specifications

Table 1: Specifications

Specifications	Detector Data			
Detector PID	4098-5602, 4098-5604*	4098-5601, 4098-5603*	4098-5611, 4098-5612[1]	4098-5610, 4098-5613[2]
Type of Detector	Photo-Heat	Photo	Heat	Heat RoR
Operating Voltage (2-wire)	10.5 – 33 VDC	10.5 – 33 VDC	10.5 – 33 VDC	10.5 – 33 VDC
Rated Voltage (4-wire)	15 – 32 VDC	15 – 32 VDC	15 – 32 VDC	15 – 32 VDC
Input ripple voltage	25% Max.	25% Max.	25% Max.	25% Max.
Max. Alarm current	64 mA at 30 V, 33 mA at 20 V, 14.5 mA at 12 V			
Surge current	<200 µA	<200 µA	<200 µA	<200 µA
Standby Current	<70 µA	<70 µA	<70 µA	<70 µA
Heat Element Rating	135°F	N/A	135°F or 57.2°C	135°F or 57.2°C fixed temperature and rate-of-rise.
Rate-of-Rise Temperature Alarm	N/A	N/A	N/A	>=20° F/ min (11° C/ min), only in effect at temperature s greater than 90° F (32° C)
Humidity Range (non-condensing)	10-95% RH	10-95% RH	10-95% RH	10-95% RH
Air velocity range	0-2000 FPM	0-2000 FPM	N/A	N/A
Ambient operating temperature range, see note 3	0°C to 38°C 32°F to 100.4°F	0°C to 38°C 32°F to 100.4°F	0°C to 50°C 32°F to 122°F	0°C to 50°C 32°F to 122°F
Storage temperature	30°C to 70°C -22°F to 158°F			
Height	42mm (1 5/8 in.) 53mm (2 1/8 in.) with base			
Material	All plastic parts: flame retardant ABS or PC-ABS			
Mounting Position	Mount on or close to ceiling, out of direct sunlight			
Environment	Indoor application only			

*4098-5603 and 4098-5604 detectors are ULC listed.

Note:

1. Heating element for 4098-5612 is rated at 200°F or 93.3°C .
2. Heating element for 4098-5613 is rated at 200°F or 93.3°C fixed temperature and rate-of-rise.
3. Ambient operating temperatures refer to normal installation temperatures only. During fire conditions the detectors will experience considerably higher temperatures, but they can continue to function at the higher alarm temperatures.

Smoke detector features

Intelligent data evaluation. Conventional smoke detectors will typically drift toward being too sensitive due to the accumulation of dust and dirt. With microprocessor based analog detection, data from the photoelectric chamber is monitored and analyzed at the detector to provide a continuously shifting reference point.

Drift compensation. The data evaluation and its shifting reference point provide a software filtering process that compensates for environmental factors (dust, dirt, etc.) and component aging, establishing an accurate reference for evaluating new activity. With this filtering, the resulting drift compensation provides a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity – either up or down.

Maintained sensitivity and dirty status indications.

With its onboard software compensation, the 4098-5601 and 4098-5602 maintains their sensitivity much longer in the presence of dust and dirt accumulation. Additionally, it will determine when the dirt accumulation is approaching the limit of compensation, and will indicate that condition through its status indicator LED (see diagnostic information).

Magnetic test information

The detectors have self-monitoring feature that enables them to detect problems and the status information is available by performing the magnetic test and observing the detector LED pulses. The LED will normally go directly into alarm with the magnetic test. If there is an off-normal condition, the LED pulses first to indicate the condition and then goes into alarm. (See Detector status LED indications and Table 7 Magnetic test LED response:)

Note: Replace the photo detector when it is dirty. Contact your local branch office.

Application reference

Observe heat detector location guidelines. Ambient temperature operating range is 32° F to 100° F (0° C to 38° C). Temperature fluctuations should be less than 6° F/min (3.3° C/min).

Detector locations. Locations should be determined only after careful consideration of the physical layout and contents of the area to be protected. Refer to NFPA 72, ***the National Fire Alarm Code***. On smooth ceilings, smoke detector spacing of 30 ft (9.1 m) may be used as a guide. For detailed installation information, refer to ***4098 Detectors, Sensors, and Bases Application Manual*** (574-709).

Product Selection

Table 2: Detector types

PID	Description	Compatibility
4098-5602	Photo-Heat detector listed to UL.	Compatible with bases: 4098-5207, 4098-5261, 4098-5680 and 4098-5682
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.	

Note: The heat detectors are listed to both UL and ULC standards.

Table 3: Maximum spacing between heat detectors

Model	Rating	Type	UL Maximum Spacing
4098-5610	135°F or 57.2°C	Fixed with rate-of rise	50 ft
4098-5611		Fixed temperature	50 ft
4098-5612	200°F or 93.3°C	Fixed temperature	50 ft
4098-5613		Fixed with rate-of rise	50 ft

Table 4: Compatible bases

Model	Description	Details*
4098-5207	2-wire 5 in. base for conventional/ addressable detectors with connections for remote alarm LED indicator	IDC and LED connections are screw terminals for in/out wiring, 18 to 14 AWG
4098-5261	2-wire 4 in. base for conventional/ addressable detectors with connections for remote alarm LED indicator	IDC and LED connections are screw terminals for in/out wiring, 18 to 14 AWG
4098-5682	**4-wire 5 in. base** with Auxiliary Alarm Relay Contacts and connections for Remote LED Alarm Indicator **Note:** Requires external 24 VDC for operation	**Relay ratings, single form "C", for suppressed loads:** Power limited, 3 A @ 28 VDC; Non-power limited, 3 A @ 120 VAC **Wiring connections (In/Out where required):** Relay contacts and IDC wiring, color coded 18 AWG leads; LED wiring, screw terminals for 18 to 14 AWG
4098-5680	**2-Wire 5 in. base with Auxiliary Alarm Relay** and connections for Remote LED Indicator **Note:** Must be connected as the only device on the IDC to ensure relay operation.	**Relay ratings, dual form "C", for suppressed loads:** Power limited, 1 A @ 28 VDC; Non-power limited, 1/2 A @ 120 VAC **Wiring connections (In/Out where required):** Relay contacts and IDC (-), color coded 18 AWG leads; IDC (+) and LED wiring, screw terminals for 18 to 14 AWG

Table 5: Detector accessories

Model	Description		Details*	
4098-9799	6 in. adapter plate		**Required** for mounting to surface mounted 4 in. (102 mm) square or 4 in. octagonal boxes, and to 4 in. square flush mounted boxes	
			May be used when retrofitting existing bases	
			Compatible with detector bases 4098-9769 and 4098-5261	
4098-9830	Remote LED indicator		Mounted on single gang stainless steel plate	
2098-9739	Encapsulated	24 VDC End-of-Line Relay	Dimensions: 2-1/2 in. x 1-1/2 in x 1 in. (64 mm x 38 mm x 25.4 mm)	**Required** for 4-wire circuits using 4098-5682 base, one for each circuit; select mounting type as required; wiring is color coded 18 AWG wire leads
2098-9735	Plate Mounted		Mounted on single gang stainless steel plate	
* Refer to Dimensions and reference information for dimensions and additional mounting details; 18 AWG = 0.82 mm2; 14 AWG = 2.08 mm2				

Detector status LED indications

Table 6: Detector status LED indications

LED indication	Status
Pulses approximately every 4 seconds	Normal
Steady on	Alarm

Table 7: Magnetic test LED response:

Fault Type	LED	Fault Description
Fault A	Red LED flashes four times every two seconds then the detector goes into alarm	Detector is within 10% of drift compensation limit
Fault B	Red LED flashes six times every one second then the detector goes into alarm	Heat sensing element has been damaged in the Optical Heat detector
Fault C	Red LED flashes four times every two seconds but the detector does not go into alarm. The LED continues to flash while the magnet is in place, and 10 seconds afterwards. The detector then returns to normal operation. The detector becomes more sensitive and risks false alarm.	Detector has reached drift compensation limit or the optical sensor or the heat sensor is faulty.

Dimensions and reference information

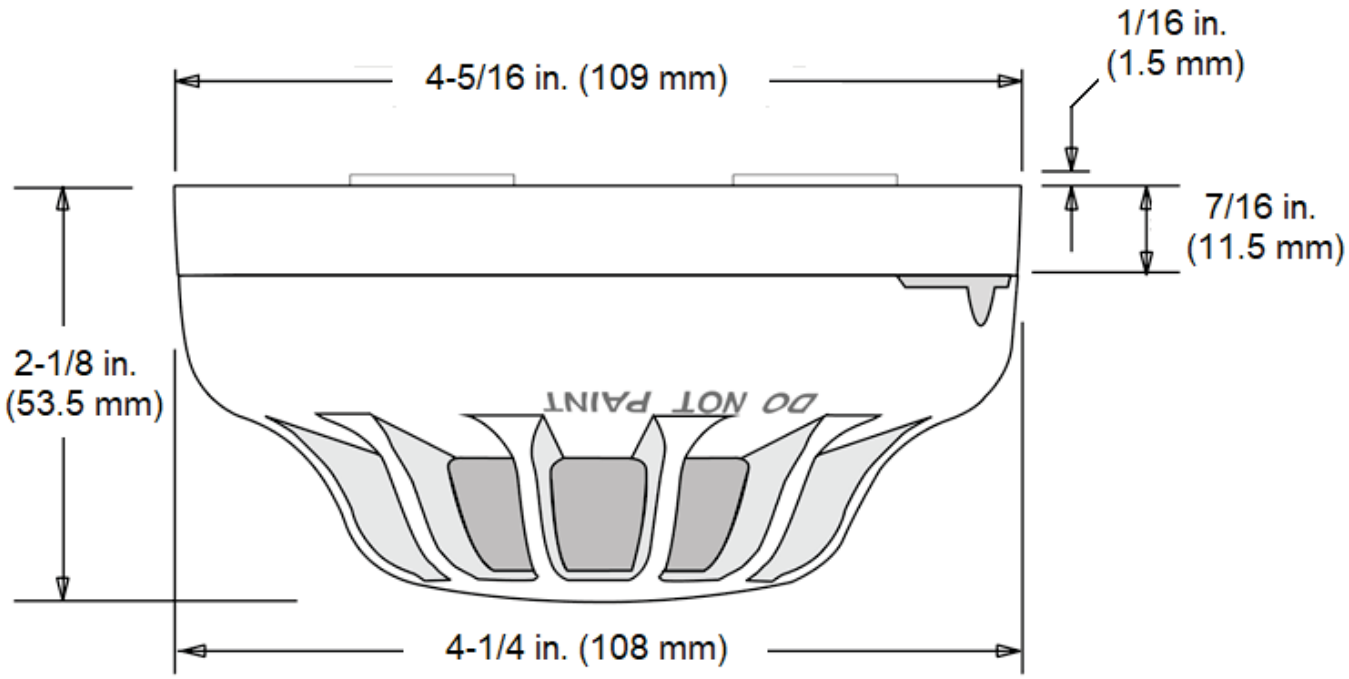


Figure 3: 4098-5601 and 4098-5602 dimensions mounted on base

Figure 4: 2098-9808 Remote LED Indicator (not to scale)

Mounting information

Note: Electrical boxes are supplied by others.

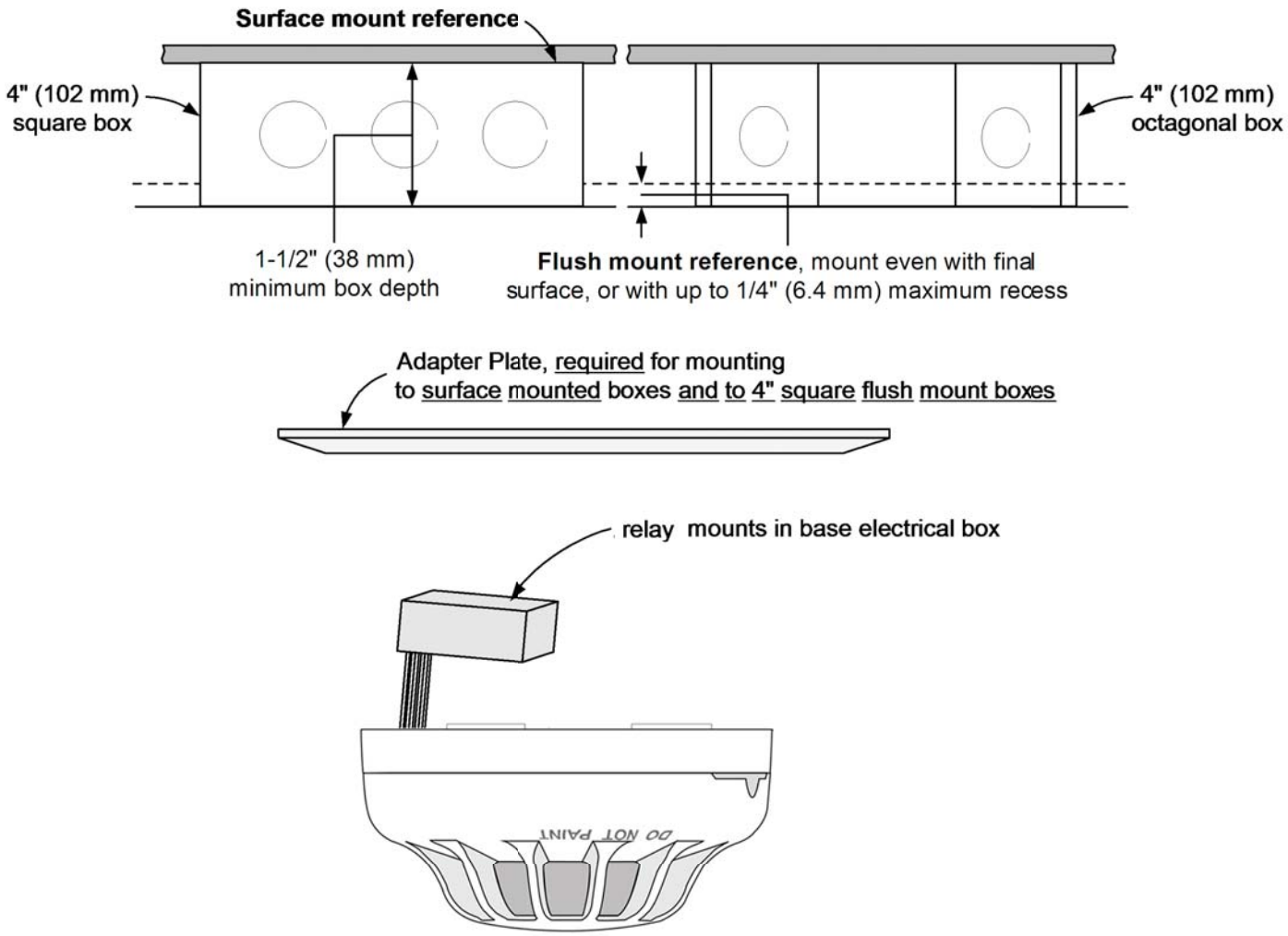


Figure 5: Mounting Information

Note: Figure 5 shows:

- 4098-9799 adapter plate, required for mounting to surface mounted boxes and to 4" square flush mount boxes.
- 4098-5682 and 4098-5680 include a relay module that mounts in base electrical box.
- Smoke and heat detector bases, 4098-5207, 4098-5261, 4098-5682, 4098-5680.

Electrical box requirements

- Without relay (base 4098-5261): 4 in. octagonal or 4in. square, 1-1/2 in. deep Single gang, 2 in. deep
- With relay (bases 4098-5682 and 4098-5680): 4 in. octagonal, 1-1/2 in. deep, with 1-1/2 in extension ring 4 in. square, 1-1/2 in. deep, with 1-1/2 in extension ring

Features

Manual fire alarm stations for releasing applications:

- Double action push and pull operation with a normally open (NO) contact
- Current limited model is available with series connected 560 Ω resistor for Style C operation (current limited = alarm; open or short = trouble)
- Operation complies with ADA requirements
- Pull lever protrudes when alarmed
- Break-rod is supplied (use is optional)
- Label kit provides six varieties of releasing applications (ordered separately)
- Screw terminals for wiring connections

Tamper resistant reset key lock (keyed same as Simplex fire alarm cabinets)

Multiple mounting options:

- Surface or semi-flush with standard boxes or matching Simplex boxes
- Flush mount adapter kit
- Adapters are available for retrofitting to commonly available existing boxes

UL listed to Standard 38

Operation

Double Action Push Type Manual Release Stations require that a spring loaded interference plate (marked PUSH) be pushed back to access the pull lever of the single action station, reducing the possibility of an accidental activation. A firm downward pull of the lever then activates the alarm switch, breaking an internal plastic break-rod, visible below the pull lever.

Break-rod use is optional. Use of a break-rod can provide an additional reduction of the possibility of an accidental activation without interfering with the minimum pull requirements needed for easy activation.

When activated, the pull lever latches into the alarm position and remains extended out of the housing to provide a visible indication.

Station reset requires the use of a key to reset the manual station lever and deactivate the alarm switch. If the break-rod is used, it must be replaced.

Station testing is performed by physical activation of the pull lever. Electrical testing can be also performed by unlocking the station housing to activate the alarm switch.

Figure 1: Double Action Push Type Manual Release Station (shown with sample release label)

Figure 2: Label Kit 4099-9802

Label selection

A blank area on the front of the station allows the selection of a label to match the specific release application (label kit is ordered separately).

Refer to data sheet *S2099-0007* for standard Simplex manual stations.

Product selection

Table 1: Double action, push operation, manual release stations

Model	Description	
2099-9149	Standard operation, NO contact	Manual release station, red housing with white letters and white pull lever; requires label kit 4099-9802
2099-9152	For Style C operation, NO contact with series connected 560 Ω resistor	
4099-9802	Label kit; select the label required for the specific release application; types include: Clean Agent, Extinguishing, Carbon Dioxide, Foam System, Sprinkler, and Manual	

Table 2: Accessories

Model	Description		Reference
2975-9178	Surface mount red box	Steel	Refer to page 3 for dimensions
2975-9022		Cast aluminum	
2099-9813	Semi-flush trim plate for double gang switch box, red		Typically for retrofit, refer to page 4 for details
2099-9814	Surface trim plate for Wiremold box V5744-2, red		
2099-9819	Flush mount adapter kit	Black	Refer to page 4 for details
2099-9820		Beige	
2099-9804	Replacement break-rod		
252-019	B key for manual station reset		

Specifications

Wire Connections	Screw terminal for in/out wiring, for 18 AWG to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
Temperature Range	32°F to 140°F (0°C to 60°C) intended for indoor operation
Humidity Range	Up to 90% RH at 90°F (38°C)
Housing Color	Red with white raised lettering
Material	Housing and pull lever are Lexan polycarbonate or equal
Pull Lever Color	White with red raised lettering
Housing Dimensions	5 in. H x 3. 3/4 in. W x 1 in. D (127 mm x 95 mm x 25 mm)
Installation Instructions	574-686

Semi-flush mounting reference

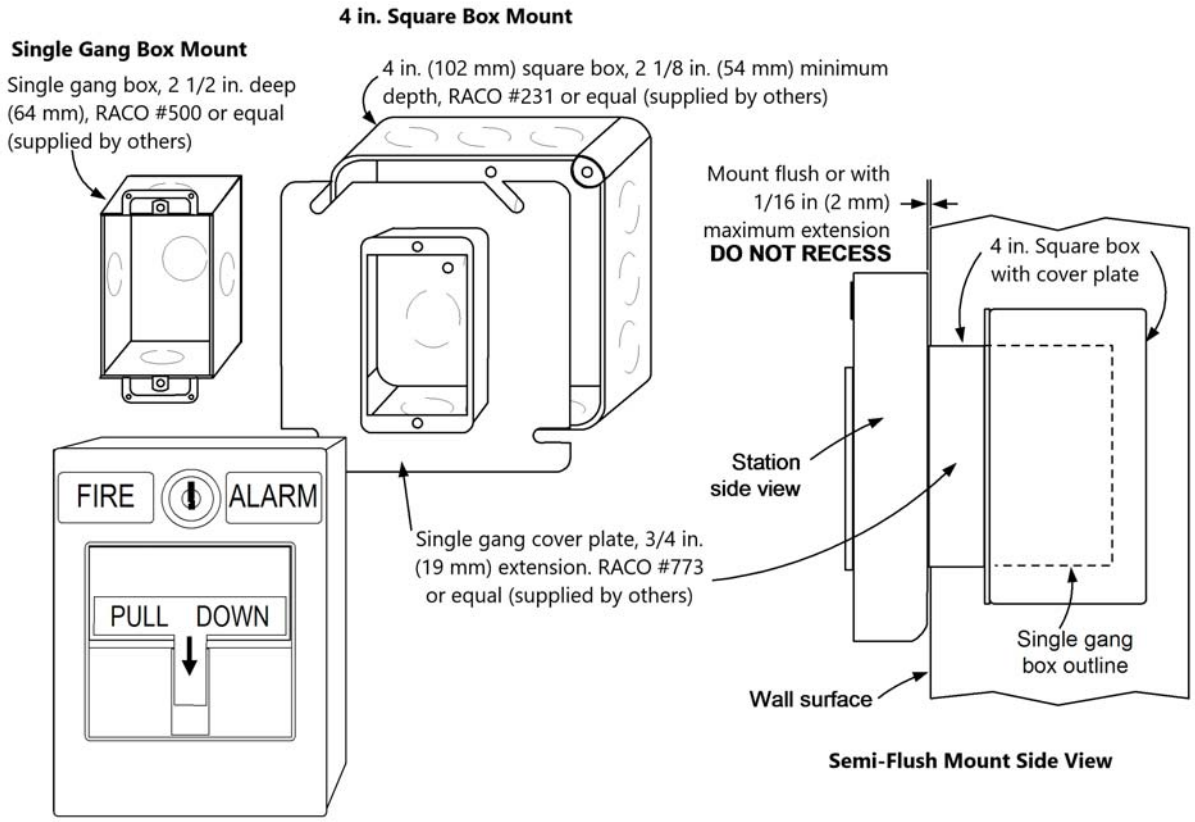


Figure 3: Semi-flush mounting reference

Surface mounting reference

Preferred mounting. For surface mounting, the preferred electrical boxes, the 2975-9178 Box and 2975-9022 Cast Box, are shown in the illustration.
Additional mounting reference. Refer to Additional mounting information

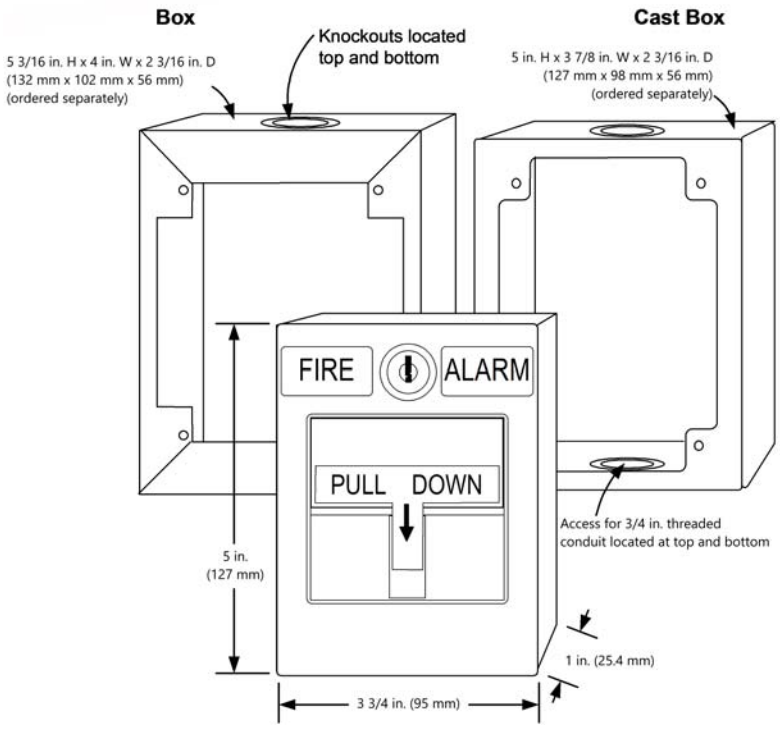


Figure 4: 2099 Series manual release station

Surface mount side view

The illustration shows the side view of the 2975-9178 box.

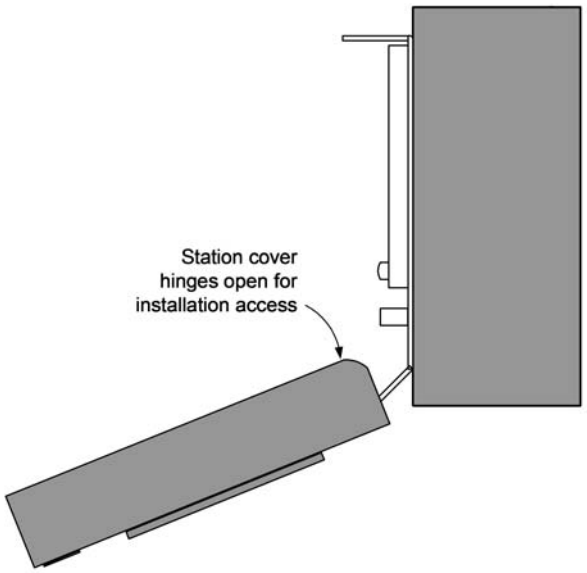


Figure 5: Surface mount side view

Additional mounting information

For retrofit and new installations, additional compatible mounting boxes and the required adapter plates (the 2099-9814 Surface trim and the 2099-9813 Semi-flush trim) are shown in the illustration.

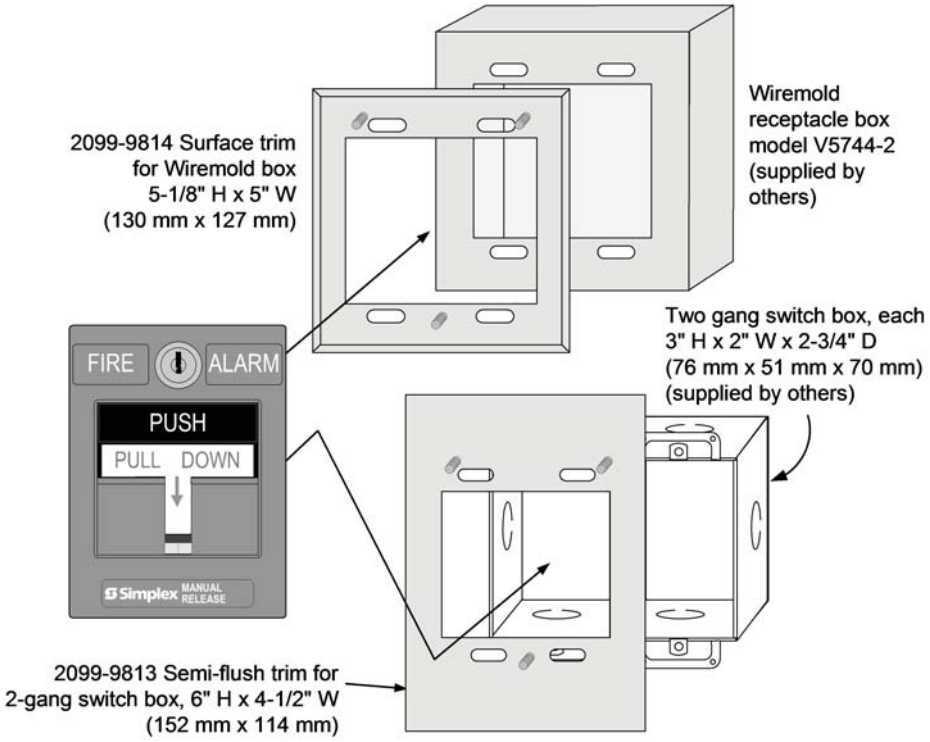


Figure 6: Additional mounting information

Flush mounting information

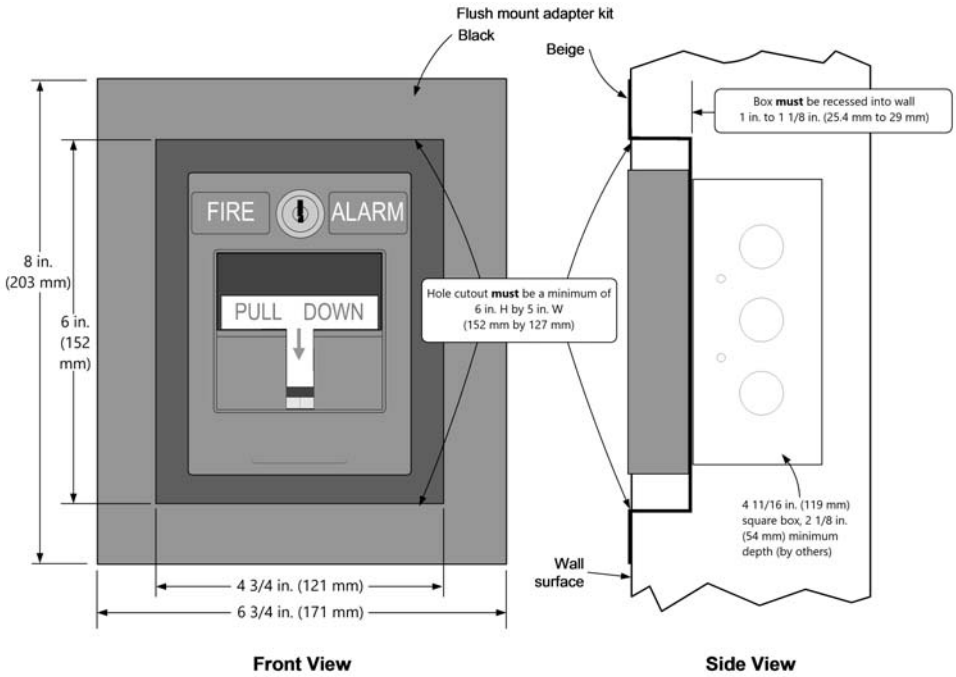


Figure 7: Flush mounting information

Releasing System Peripherals

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

Fire Suppression System Abort Switches and Releasing Appliance Circuit (RAC) Maintenance Switches

Features

Abort switches provide a manual Fire Suppression System release abort request:

- Pushbutton momentary switch is mounted on a stainless steel single-gang plate
- A protruding collar protects the switch from accidental contact (collar is removable if required)
- Available flush or surface mount
- Flush mounting requires standard single-gang box
- Surface mounting includes a red mounting box
- Models are available with internal 1.2 kΩ resistor for current limited operation

Maintenance switches provide a secure and visible disconnect means for servicing Fire Suppression System Releasing Appliance Circuits (RACs):

- Maintained position keyswitch with key removable only in the normal position
- Disabled position opens connection to output circuit and places a 16.2 kΩ resistor across the input circuit to initiate a supervisory condition at the host panel
- Models with indicator lamp use a bright incandescent bulb with red lens, powered from separate 24 VDC
- Available for flush or surface mount
- Flush mounting requires a standard double-gang box for models with lamp or a standard single gang box for models without lamp.
- Surface mount models includes a red mounting box
- Models with lamp provided with a double gang stainless steel plate. Models without lamp provided with a single gang stainless steel plate.

UL listed to Standard 864

Description

Releasing systems require maintenance disconnect switches and often require abort switches. These abort and maintenance switches are clearly labeled and combine easy operation with rugged construction for high integrity operation.

Maintenance Switches, with and without Disconnect Indicator Lamp

Abort Switch

* Refer to page 2 for specific product listings. NOTE: MEA is not applicable to Maintenance Switches. FM is not applicable to Abort Switches.

As indicated on page 2, these products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-0026:313 for allowable values and/or conditions concerning material presented in this document. Abort switches are accepted for use – City of New York Department of Buildings – MEA35-93E. Maintenance switches were not approved by FM as of document revision date. Additional listings may be applicable, contact your local Simplex® product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Product Selection (see page 3 for specifications)

Abort Switches

Model	Description	Listing Status	Details
2080-9056	Flush mount	UL & CSFM listed; MEA (NYC) Acceptance	Single-gang size; includes 3 position contact block housing with one contact block installed
2080-9057	Surface mount; includes red mounting box		

Abort Switches for 4004R Series Suppression Release Panel Current Limited Operation

Model	Description	Listing Status	Details
2080-9067	Flush mount	UL & CSFM listed; MEA (NYC) Acceptance	Single-gang size; includes 1.2 kΩ, 1W resistor for current limited operation and 3 position contact block housing with one contact block installed.
2080-9068	Surface mount; includes red mounting box		

Note: For ULC listed abort switches, refer to datasheet S2080-0011.

Maintenance Switches with Disconnect Indicator Lamp

Model	Description	Listing Status	Details
2080-9059	Flush mount	UL, ULC, & CSFM listed	Double-gang size; includes 3 position contact block housing with 2 contact blocks installed; disabled position opens connection to output and places a 16.2 kΩ resistor across the input circuit; resistor is removable if required for retrofit
2080-9060	Surface mount; includes red mounting box		

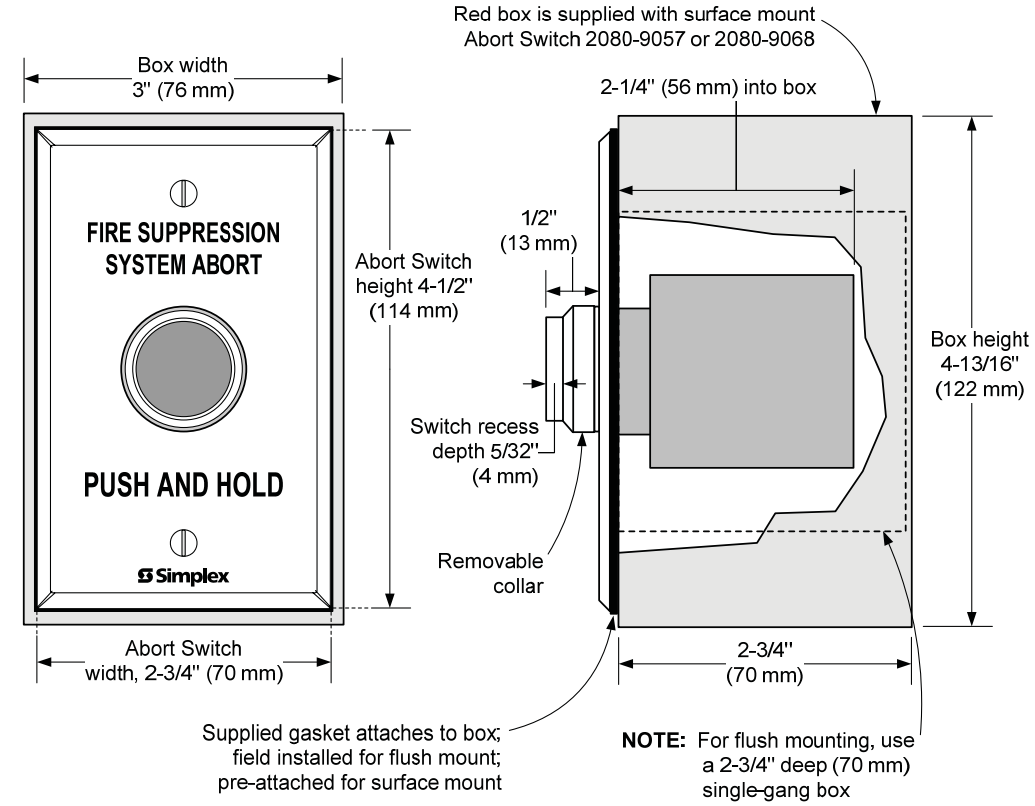
Maintenance Switches without Disconnect Indicator Lamp

Model	Description	Listing Status	Details
2080-9069	Flush mount	UL, ULC, CSFM listed;	Single-gang size; includes 3 position contact block housing with 1 contact block installed; disabled position opens connection to output and places a 16.2 kΩ resistor across the input circuit; resistor is removable if required for retrofit
2080-9070	Surface mount; includes red mounting box		

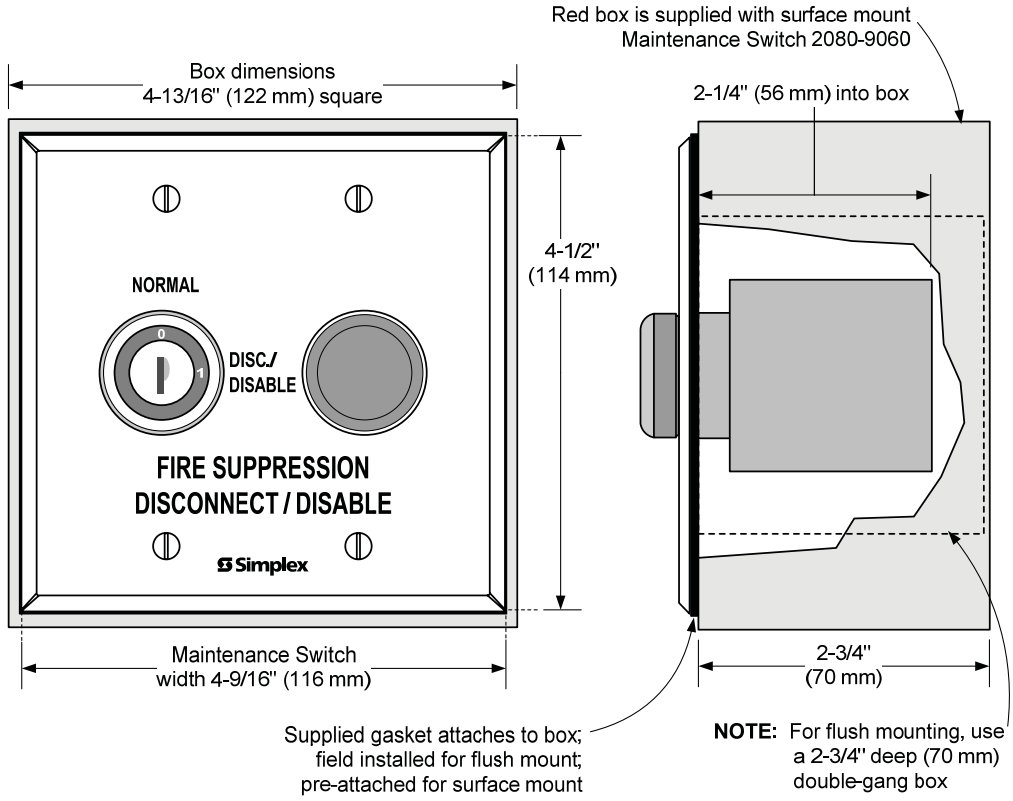
Accessories for Field Installation

Model	Description
2080-9061	Additional Contact Block for Abort or Maintenance Switch; 1 Form C contact; UL recognized component for use with these switches; listings and approvals are not applicable

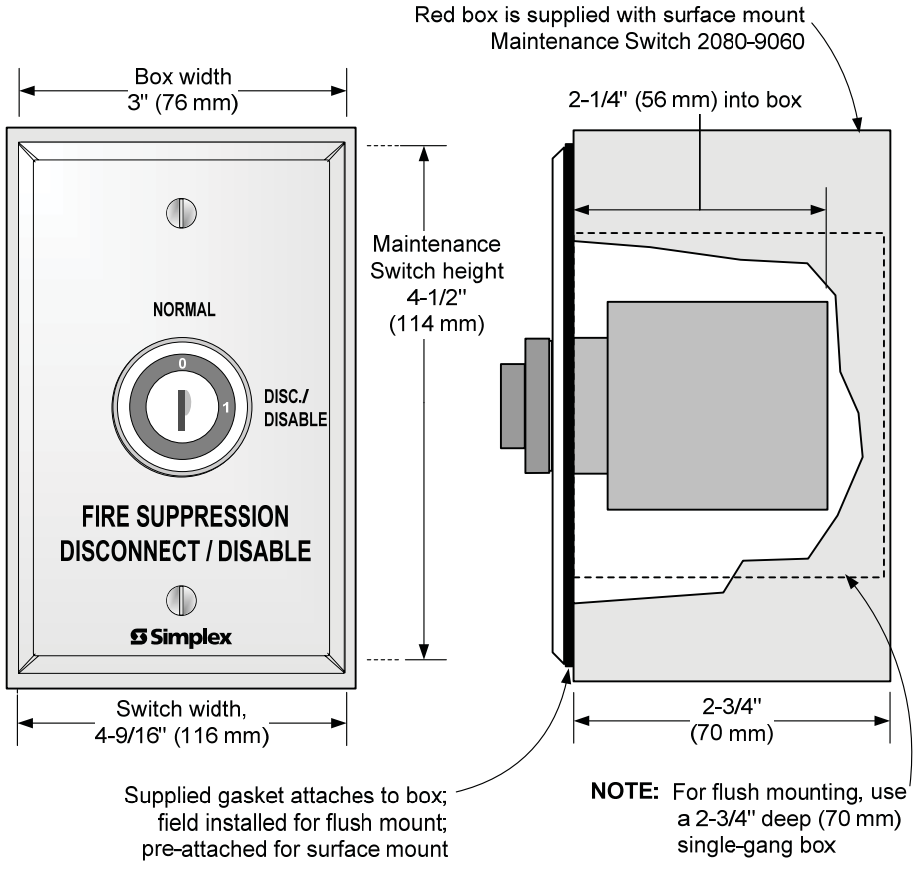
Abort Switch Installation Reference



2080-9059 and 2080-9060 Maintenance Switch Installation Reference



2080-9069 and 2080-9070 Maintenance Switch Installation Reference



Specifications

Electrical Ratings	
Abort Switch; One Contact block	Silver contacts; 1 N.O. & 1 N.C.; rated 2 A resistive @ 30 VDC
Maintenance Switch Control Contact Block (all models)	Circuit control: Silver contacts; 1 normally open & 1 normally closed; rated 2 A resistive @ 30 VDC
Maintenance Switch Lamp Contact Block; (models 2080-9059 and 2080-9060)	Lamp control: Silver contacts; 1 normally open & 1 normally closed; rated 2 A resistive @ 30 VDC
Maintenance Switch Indicator Light (models 2080-9059 and 2080-9060)	Replaceable 2 W incandescent bulb; 24 to 30 VDC typical; 83 mA @ 24 VDC; requires separate 24 VDC
Wiring Connections	
Abort Switch	Terminal blocks for in/out wiring; 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
Abort Switch with Current Limited Resistor	Terminal blocks for first wire connection; 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2); 18 AWG wire lead for second wire connection
Maintenance Switch	18 AWG (0.82 mm^2) color coded wire leads for suppression circuit; terminal blocks for lamp wiring; 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
Additional Information	579-416, Installation Instructions
Environmental Ratings	
Temperature Range	32° F to 120° F (0° C to 49° C)
Humidity Range	Up to 93% at 90°F (32° C)

Simplex®

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

True*Alert* Notification Appliances

Non-Addressable Audible/Visible Notification Appliances for 4-Wire Operation (Horn/Strobe)

Features

Wall mount audible/visible notification appliances with efficient piezoelectric horn and high output xenon strobe for 4-wire control applications

Xenon strobe visible notification appliance:

- 24 VDC operation with switch selection for free-run or synchronized flash rate
- Models available with 15, 75, or 110 candela
- UL listed to Standard 1971
- Compatible with ADA requirements (refer to important installation information on page 4)
- Strobe candela rating is clearly indicated on reflector

Electronic horn audible notification appliance:

- Low current operation (25 mA @ 24 VDC)
- Harmonically rich output sound suitable for either coded or steady operation
- UL listed to Standard 464

Available housing colors:

- Red cover with white "FIRE" lettering
- White cover with red "FIRE" lettering

Flexible, easy, and convenient semi-flush or surface wall mounting:

- Easily mounts to single gang, double gang, or 4-inch square outlet box
- Optional mounting adapters are available to cover surface mounted electrical boxes and to adapt to Simplex® 2975-9145 boxes
- Diode polarized inputs for connection to reverse polarity, supervised notification appliance circuit (NAC)
- In/out wiring terminals for 18 AWG to 12 AWG, accessible from front of housing, providing easy access for installation, inspection and testing
- Rear of housing assembly does not extend into box
- Rugged, high impact, flame retardant thermoplastic housing with optional covers available to convert housing color
- Optional UL listed red wire guard is available for semi-flush or surface mounting

* 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 7125-0026:239 for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. This product was not ULC listed as of document revision date. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

TrueAlert Non-Addressable A/V Notification Appliances are available in Red with White Lettering and White with Red Lettering

Description

TrueAlert non-addressable audible and visible notification. For applications requiring audible/visible (A/V) notification with horn tones, these Simplex 4903 series appliances combine a high intensity strobe with a low current electronic horn in a compact package that is easy and quick to install. Each appliance can be controlled independently from each other using conventional reverse polarity NACs.

Multiple models with flexible mounting choices. These 4-wire operation A/V appliances are available with three strobe intensity levels (15, 75, or 110 cd) and with red or off-white housings. Mounting can be semi-flush or surface mount on a standard single or double gang, or 4" square (102 mm) electrical box. Optional accessories are available to increase mounting and application flexibility.

Strobe Selection

Proper selection of visible notification is dependent on occupancy, location, local codes, and proper applications of: the *National Fire Alarm Code* (NFPA 72); ANSI A117.1; the appropriate model building code, BOCA, ICBO, or SBCCI, and the application guidelines of the Americans with Disabilities Act (ADA).

Strobe Operation

TrueAlert non-addressable A/V strobes can be set for free-run operation or synchronized operation using an on-board selection switch. When selected for *synchronized operation*, flash operation is controlled from:

- **Synchronized Flash Modules**, 4905-9914 (Class B) or 4905-9922 (Class A)
- **4006, 4007ES Hybrid, 4008, 4010, 4010ES, 4100ES, and 4100U Fire Alarm Control Panels** (refer to individual product data sheets for details)
- **4009 IDNet NAC Extender**, models 4009-9201 and 4009-9301 (refer to data sheet S4009-0002)

Horn Operation

TrueAlert non-addressable A/V horns provide an audible notification output that is a loud and penetrating, harmonically rich sound capable of a continuous or coded output per the controlling NAC's capabilities.

Product Selection

Audible/Visible Notification Appliances (Horn/Strobe)

Model	Visible Notification Appliance Output			Housing Color
	15 cd	75 cd	110 cd	
4903-9425	✓			Red with white "FIRE" lettering
4903-9426		✓		
4903-9427			✓	
4903-9431	✓			White with red "FIRE" lettering
4903-9432		✓		
4903-9433			✓	

Adapters

Model	Description		Dimensions
4905-9937	Surface mount red adapter skirt	Use to cover 1-1/2" deep surface mounted boxes	5-3/8" H x 5-1/4" W x 1-5/8" D (136 mm x 133 mm x 41 mm) Total depth with strobe = 4-3/8" (111 mm)
4905-9940	Surface mount white adapter skirt		
4905-9931	Red adapter plate, for mounting to Simplex 2975-9145 box (typically for retrofit, may be mounted vertical or horizontal)		8-5/16" x 5-3/4" x 0.060" Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Red mounting box, requires 4905-9931 adapter plate		7-7/8" x 5-1/8" x 2-3/4" Deep (130 mm x 200 mm x 70 mm)

Synchronized Flash Control Modules

Model	Description		Dimensions
4905-9914	Synchronized Flash Module, Class B operation	Epoxy encapsulated with in/out 18 AWG wire leads, rated for 2 A NAC, requires 10 mA for power	1-3/8" W x 2-7/16" L x 13/16" H (35 mm x 62 mm x 20 mm)
4905-9922	Synchronized Flash Module, Class A operation		

Optional Covers and Guard

Model	Description	Dimensions
4905-9994	Red cover with white "FIRE" lettering	5-1/8" H x 5" W x 1-1/2" D (130 mm x 127 mm x 38 mm)
4905-9995	White cover with red "FIRE" lettering	
4905-9961*	Wire guard with mounting plate, red, compatible with surface or semi-flush mounted boxes	6-1/16" H x 6-1/16" W x 3-1/8" D (154 mm x 154 mm x 79 mm)

* UL listed by Space Age Electronics Inc.

Specifications

General Specifications

Housing Dimensions (including lens)	5-1/8” H x 5” W x 2-3/4” D (130 mm x 127 mm x 70 mm)
Temperature Range	32° to 122° F (0° to 50° C)
Humidity Range	10% to 93%, non-condensing at 100° F (38° C)
Connections	Terminal blocks for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires per terminal for in/out wiring

Strobe Specifications

Rated Voltage Range	UL Listed Range	Regulated 24 VDC; see Note 1 below		
Flash Rate and Synchronized NAC Loading		1 Hz; with up to 35 synchronized strobes maximum per NAC		
Maximum RMS Current Rating per Strobe Output (see Note 2 below)		**15 cd**	**75 cd**	**110 cd**
		76 mA	**192 mA**	**227 mA**
Reference Currents at other voltages	18 VDC	68 mA	171 mA	202 mA
	24 VDC	51 mA	128 mA	151 mA

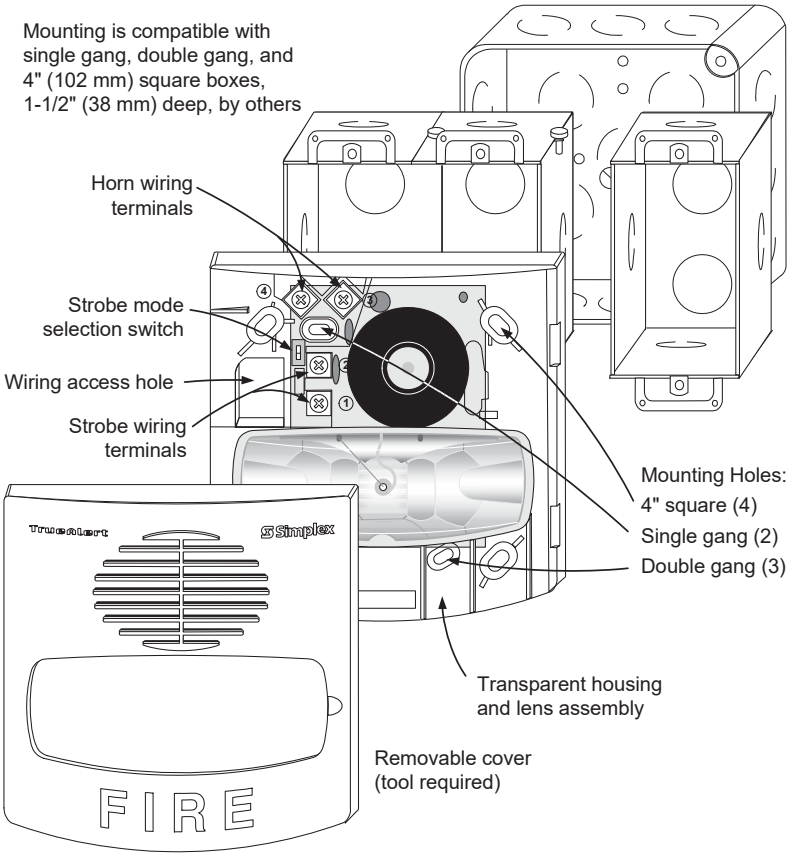
Horn Specifications

Rated Voltage Range	UL Listed Range	16 VDC to 33 VDC, see Notes 3 and 4 below					
Sound Output Characteristics		2400 to 3700 Hz sweep, modulated at 120 Hz rate					
Sound Output and Current Ratings @ 10 ft (3 m)	Voltage	**16 VDC**		**24 VDC**		**33 VDC**	
	Sound Type (see Note 5)	**Steady**	**Coded**	**Steady**	**Coded**	**Steady**	**Coded**
	Current	15 mA	10 mA	25 mA	15 mA	28 mA	20 mA
	Reverberant Chamber, UL 464 Test	85 dBA	82 dBA	88 dBA	84 dBA	91 dBA	87 dBA
	Anechoic Chamber	90 dBA	86 dBA	91 dBA	86 dBA	91 dBA	87 dBA

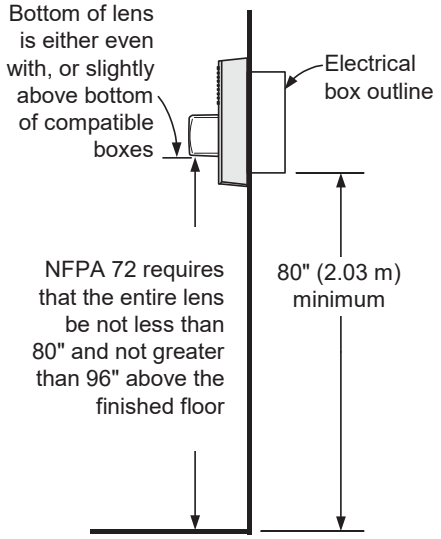
NOTES:

1. “Regulated 24 VDC” refers to the voltage range of 16 to 33 VDC per UL Standard 1971, Signaling Devices for the Hearing Impaired. This voltage range is the absolute operating range. Operation outside of this range may cause permanent damage to the appliance. Please note that 16 VDC is the lowest operating voltage that is allowed at the last appliance on the NAC under worst case conditions. The strobe of this A/V is field selectable for free-run or synchronized operation.
2. The maximum RMS current listed is the device nameplate rating. Strobe designs are constant wattage and the maximum RMS current rating occurs at the lowest allowable operating voltage. (RMS is root mean square and refers to the effective value of a varying current waveform.)
3. Terminals are provided for wiring the horn and strobe of these A/Vs to separate NACs. Operation of the horn and strobe is not separately controlled when they are both wired to the same NAC.
4. The rated voltage range listed is the absolute operating range. Operation outside of this range may cause permanent damage to the appliance. Please note that 16 VDC is the lowest operating voltage that is allowed at the last appliance on the notification appliance circuit under worst case conditions.
5. Coded values are typical of the output measured with a Temporal coded or a March Time coded pulse and with a sound level meter reading on a “fast” setting. Under the same test conditions, coded horn output “peak” sound level readings are typically 4 dBA higher.

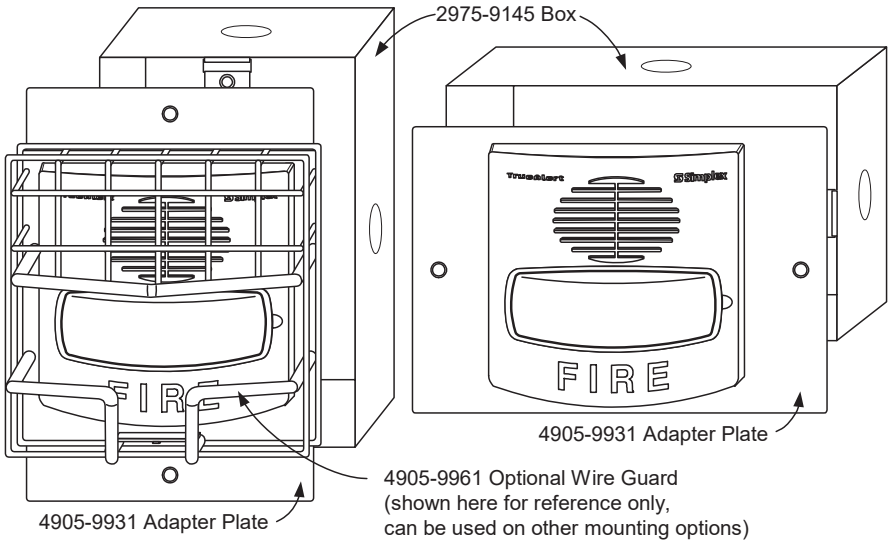
Installation Reference, Surface or Semi-Flush Mounting



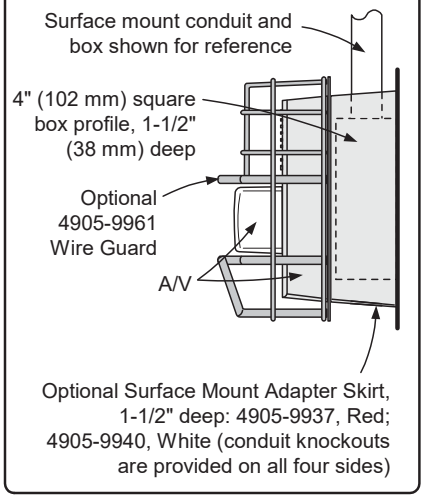
IMPORTANT! WALL MOUNT INSTALLATION HEIGHT REFERENCE



Installation Reference, Adapter Plate, Guard, and Adapter Skirt



Surface Mounting Reference with Optional Adapter Skirt and Optional Wire Guard



GB Series

GB10, GB6, & GBB Fire Alarm Bells

20 units per carton, 44 pounds per carton (GB6) / 50 pounds per carton (GB10)

Applications

The GB Series provide durable and dependable operation required for life safety alarm systems.

Alarm bells are low current, high decibel notification appliances for use in fire and burglary systems or other signaling applications. The GB Series is available in 24 VDC or 120 VAC.

The GB Series is available in 6" or 10" housing and listed for indoor and outdoor applications. Bells must be used with the GBBB box for outdoor use.

The GB Series is ANSI/UL 464 listed and the units are warranted for 3 years from the date of purchase.

Standard Features

- Available in 24 VDC or 120 VAC
- Available in 6" or 10" housing
- Four wire 24 VDC or 120 VAC operation
- High dbA output
- Mounts to a standard 4" square electrical box
- ANSI/UL listed for outdoor use when used with the GBBB back box
- 18 AWG wire leads
- Available in red metal finish

GB 24 VDC / GB 120 VAC Fire Alarm Bell

Model Number	Part Number	Voltage	Housing Size	Current Draw (mA)	dBA at 10ft.
GB6-24	904-1278-002	24 VDC	6"	100 mA	95 dBA
GB10-24	904-1279-002	24 VDC	10"	100 mA	96 dBA
GB6-120	904-1280-002	120 VAC	6"	46 mA	95 dBA
GB10-120	904-1281-002	120 VAC	10"	46 mA	98 dBA

Notes

- Indoor operating temperature: 32° to 120°F (0° to 49°C)
- Outdoor operating temperature: -31° to 150°F (-35° to 65.6°C)
- GBBB back box part number; 901-0242-000
- GBBB back box dimensions: 4.25" (10.80 cm) square x 1.5" (3.81 cm) deep

Product Listings

SIGNALING UL LISTED

- ANSI/UL 464 Listed
- CSFM: 7135-0569:139
- MEA #285-91-E

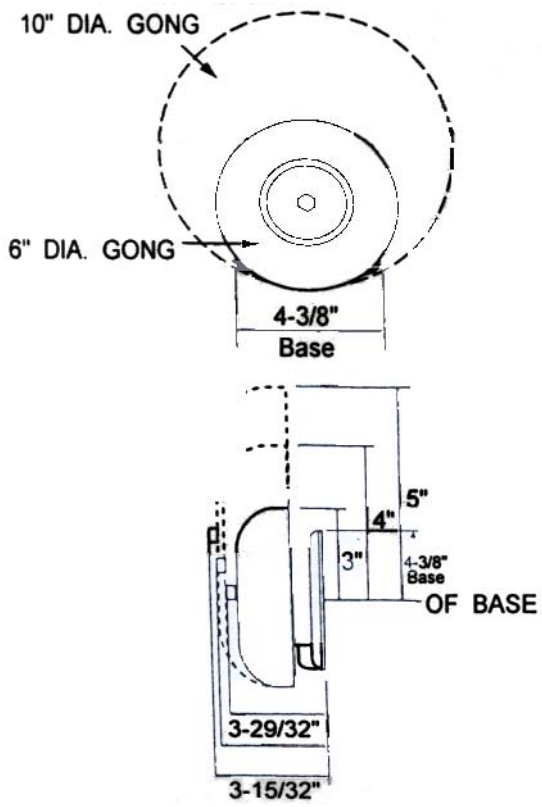
Product Compliance

- NFPA 72
- Quality Management System is certified to: ISO 9001:2008

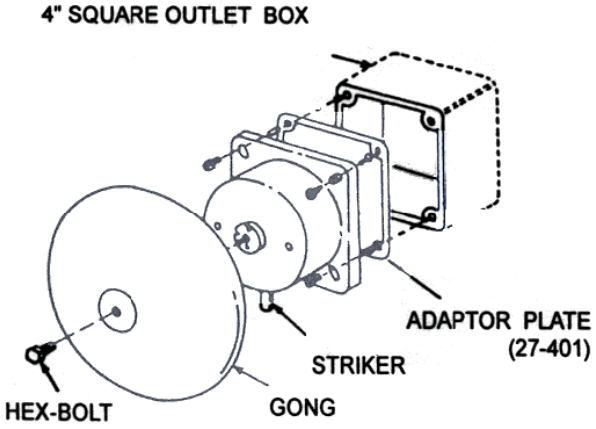
GB Series

GB10, GB6, & GBB Fire Alarm Bells

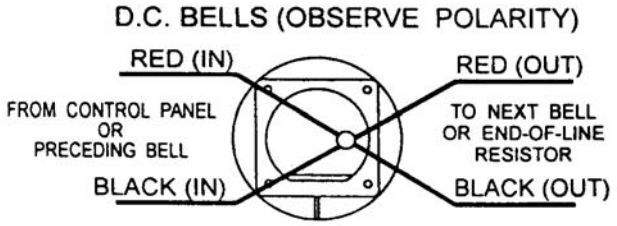
Dimensions

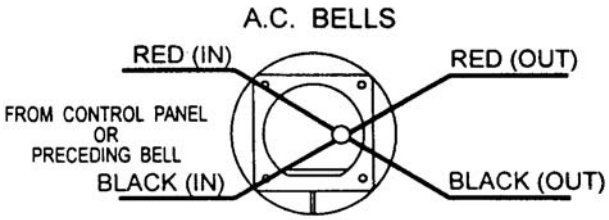


Mini-Horn Mounting



Wiring Diagrams





Architect & Engineering Specifications

The fire alarm bell shall be Gentex GB Series or approved equal and shall be listed by Underwriters Laboratories (ANSI/UL) for use with fire protective signaling systems (ANSI/UL 464). The notification appliance shall produce a peak sound output of 95 dBA or greater as measured in an anechoic chamber. The fire alarm bell shall have an operating current of 100 mA or less at 24 VDC and 46 mA or less at 120 VAC. The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit will mount to a double gang box or double workbox without the use of an adapter plate. The GB unit must be used with the GBBB outdoor box for outdoor applications to meet ANSI/UL listing requirements.

GENTEX CORPORATION

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