Elm Terrace

Portland, ME

Fire Alarm & Apartment Intercom Systems
Equipment Submittal
03/13/12

SimplexGrinnell
BE SAFE.

A Tyco International Company

Project:	**Elm Terrace** **68 High St.** **Portland, ME**
Customer:	**B H Milliken** **175 Anderson St** **Portland, ME 04101-2550**
Date:	**03/13/12**
Sales Representative:	**Sam Martin**

FIRE ALARM & APARTMENT INTERCOM SYSTEMS
EQUIPMENT SUBMITTAL

Please contact the SimplexGrinnell Service Department **TWO WEEKS IN ADVANCE** to schedule a technician for checkout.

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Submittal Approval:

Approved By:_____ Date:_____

ELM TERRACE
FIRE ALARM & APARTMENT INTERCOM SYSTEMS
EQUIPMENT SUBMITTAL

TABLE OF CONTENTS

Insert 1 Project Bills of Material (BOM)
- **Fire Alarm System**
- **Apartment Intercom System**

Insert 2 Fire Alarm Control Equipment, Batteries & Accessories
Simplex 4010ES Fire Control Panel and Accessories Data Sheet (S4010-0004)
Simplex 4009 IDNet NAC Extender Panel Data Sheet (S4009-0002)
Simplex Sealed Lead-Acid System Batteries Data Sheet (S2081-0006)
AES Intellinet RF Subscriber Unit Data Sheet (AES7788)
Knox Box Key Repository Data Sheet (3200)

Insert 3 Fire Alarm Initiating/Addressable Devices, Door Holders & Accessories
Simplex Addressable Manual Stations Data Sheet (S4099-0001)
Simplex Smoke & Heat Sensors; Bases and Accessories Data Sheet (S4098-0019)
Simplex CO Sensor Bases Data Sheet (S4098-0041)
Gentex 7000 Series Photoelectric Smoke Alarm Data Sheet (7109CS)
BRK Carbon Monoxide Detectors Data Sheet (CM2931)
Simplex 4090-9001 Individual Addressable Modules (IAM) Data Sheet (S4090-0001)
Simplex 4090-9002 Relay IAM Data Sheet (S4090-0002)

Insert 4 Fire Alarm Notification Appliances & Accessories
Simplex Multi-candela Strobes Data Sheet (S4906-0001)
Simplex Multi-candela Audible/Strobes Data Sheet (S4906-0002)

Insert 5 Apartment Intercom Control Panel & Accessories
Tektone Master Intercom Station Data Sheet (IL500)
Tektone Vandal Proof Panel Data Sheet (IL462)
Tektone Intercom Amplifier Data Sheet (IL482)
Tektone Dual Entrance Control Data Sheet (IL499)
Tektone Electric Strike & Transformers Data Sheet (IL127)
Tektone Power Supply Data Sheet (IL420)

Insert 6 Apartment Intercom Remote Station Equipment
Tektone Remote Apartment Station Data Sheet (IL233)
Tektone Strobe Unit Data Sheet (IL544)

INSERT 1

PROJECT BILLS OF MATERIAL

BILL OF MATERIAL
ELM TERRACE
FIRE ALARM SYSTEM EQUIPMENT

TAB	QTY	MODEL	DESCRIPTION
FIRE ALARM CONTROL PANEL, BATTERIES & ACCESSORIES			
2	1	4010-9401	FIRE ALARM CONTROL PANEL
2	1	4010-9912	SERIAL DACT
2	3	4009-9201	4009 IDNET NAC EXTENDER, 120 VAC
2	1	4009-9807	NAC CARD, 4PT, IDNET
2	2	2081-9275	BATTERY, SYSTEM, 12VOLT, SEALED, LEAD ACID 18Ah
2	6	2081-9272	BATTERY, SYSTEM, 12VOLT, SEALED, LEAD ACID 6.2Ah
2	1	ETHEDROP	ETHERNET DROP REQUIRED AT FACP
2	1	7788-F	AES RADIO MASTER BOX
2	1	BD7-12	12V 7AH LEAD-ACID BATTERY
2	1	1640	UL TRANSFORMER
2	1	SG SWITCH	DISCONNECT SWITCH
2	1	ADI GSW TSW-01S	TAMPER SWITCH
2	1	3270	KNOX BOX HINGED DOOR, RECESSED
FIRE ALARM INITIATING/ADDRESSABLE DEVICES, DOOR HOLDERS & ACCESSORIES			
3	5	4099-9003	IDNET DOUBLE ACTION PULL STATION
3	12	4090-9001	IDNET SUPERVISED IAM
3	12	4090-9810	4090-9001 IAM SINGLE GANG BOX MOUNTING BRACKET
3	12	4090-9806	SEMI-FLUSH MNT SINGLE GANG BOX COVER PLATE W/LITE PIPE
3	4	4090-9002	IDNET RELAY IAM
3	4	4090-9801	SEMI-FLUSH MNT DOUBLE GANG BOX COVER PLATE W/LITE PIPE
3	71	4098-9714	TRUEALARM PHOTO SMOKE SENSOR
3	4	4098-9733	TRUEALARM HEAT SENSOR
3	70	4098-9792	TRUEALARM SENSOR BASE
3	5	4098-9797	SSD SENSOR BASE WITH CO MODULE
3	4	4098-9756	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT
3	4	2098-9806	REMOTE TEST STATION W/ LED AND KEY SWITCH
3	4	2098-9798	SAMPLING TUBE 73"
3	38	5120BN	BRK 120VAC CO DETECTOR
3	83	7109CS-C	GENTEX SINGLE STATION 120V/9V SMOKE DETECTOR
FIRE ALARM NOTIFICATION APPLIANCES & ACCESSORIES			
4	10	4906-9101	V/O M-C NON-ADDRESS, RED, WALL
4	35	4906-9103	V/O M-C NON-ADDRESS, WHT, WALL
4	39	4906-9127	A/V M-C NON-ADDRESS, RED, WALL
4	86	4906-9129	A/V M-C NON-ADDRESS, WHT, WALL
4	3	4906-9131	WP MC AV NON-ADDR WALL MT RED
4	3	4905-9928	WEATHERPROOF ENCLOSURE

BILL OF MATERIAL
ELM TERRACE
APARTMENT INTERCOM SYSTEM EQUIPMENT

TAB	QTY	MODEL	DESCRIPTION
APARTMENT INTERCOM CONTROL PANEL & ACCESSORIES			
5	1	AM492P	PNL VNDL SPEAKER 0 BTN
5	1	CM492/044	MASTER INTERCOM
5	1	CM490/048	APT PANEL 48 BTN ADD-ON
5	2	AM190D	PNL APT DIR 60 NAME OF190 FRAME
5	1	OH192	HOUSING
5	1	OF192	FRAME
5	1	OH193	HOUSING 3G
5	1	OF193	FRAME 3G
5	1	PK543A	AMPLIFIER
5	1	PK502B	DUAL ENTRANCE CONTROL
5	1	SS102A	TRANSFORMER
5	2	PO001	ELEC DOOR OPENER 16VAC
APARTMENT INTERCOM REMOTE STATION EQUIPMENT			
6	38	IR204E	REMOTE APARTMENT STATION
6	5	LI404B	STROBE UNIT

INSERT 2

FIRE ALARM CONTROL EQUIPMENT, BATTERIES & ACCESSORIES

Simplex

4010ES Fire Control Panels

*UL, ULC, CSFM Listed; FM Approved**

Addressable Fire Detection and Control
Basic Panel Modules and Accessories

Features

Basic System includes:

- Capacity for up to 248 addressable devices, up to 127 VESDA SLI points, up to 2000 points of Annunciation and up to 20 internal and external card addresses
- Color-coded operator interface with membrane keypad includes 2 x 40 Super-twist LCD display, 3 programmable control keys and 6 programmable LEDs
- CPU assembly includes dedicated compact flash memory for on-site system information storage and convenient Ethernet service port access
- 8 Amp power supply with up to 2 Amps of Auxiliary power and battery charger capacity for up to 110 Ah batteries (UL) or up to 50 Ah batteries (ULC) (33 Ah max in control panel cabinet)
- 4 on-board Class A or B 3 Amp NACs and one programmable auxiliary relay output rated for 2 Amps @ 32 VDC
- Class A or B Two-loop Isolated IDNet™ Communications (IDNet+) supports up to 248 addressable and analog sensing devices on non-twisted, non-shielded wiring
- Remote annunciator module support via RUI (remote unit interface) communications port, supports either Class B (Style 4) or X (Style 7) Pathway operation
- 48 LED panel mount annunciation provides 40 Red and 8 Yellow pluggable LEDs (select models, meets ULC requirements), optional LED kits are available for custom LED configurations

Optional MSS and Door Mount Modules include:

- City Connect (with or without disconnect switches), Alarm Relay Module, TrueInsight Remote Gateway

Optional Block Space Modules include:

- Fire Alarm Network Interface Card for 4120/4100 Peer-to-Peer network communications, supports either Class B or X (Style 7) Pathway operation
- Ethernet connectivity options include Building Network Interface Module (BNIC) and SafeLINC Internet Interface
- Dual RS-232 Module (for printer, PC annunciator or third party interface)
- VESDA® Air Aspiration High Level Interface
- Serial DACT
- 8 Zone IDC Modules Class A or B
- 4 Point Auxiliary Relay Module

4010ES Fire Alarm Control Panel
with or without LED Annunciation

Compatible with Simplex® remotely located:

- 4003EC Small Voice Panels
- 4009 IDNet NAC Extenders
- 4009 TrueAlert Addressable Controllers and TrueAlert Power Supplies (TPS)
- 4081 110Ah Battery Chargers
- 4100-7400 Series Graphic Annunciators
- 4190 PC Annunciator
- 4190 Fiber Modems and Physical Bridges
- 4606-9102 Remote LCD Annunciator and 4100-9400 Series Remote InfoAlarm Command Centers
- IP communicator compatibility

4010ES Agency Listing:

- UL Std. 864, Fire Detection and Control (UOJZ), and Smoke Control Service (UUKL), and Releasing Service (SYZV)
- UL Std. 2017, Process Management Equipment (QVAX)
- UL Std. 1076, Proprietary Alarm Units-Burglar (APOU)
- UL Std. 1730, Smoke Detector Monitor (UULH)
- ULC Std. S527-99, Fire Detection and Control (UOJZC)
- ULC Std. S559-04, Supervising Station (DAYRC)

* See pages 5 and 6 for additional listing 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 7165-0026:0369 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. 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 SimplexGrinnell LP, Westminster.

Introduction

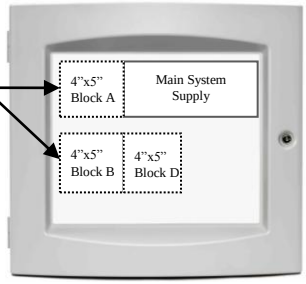
4010ES Series Fire Detection and Control Panels provide leading edge installation, operator, and service features for customer applications in the mid-range addressable fire alarm systems market. An on-board Ethernet port provides fast external system communications to expedite installation and service activity. Dedicated compact flash memory archiving provides secure on-site system information storage of electronic job configuration files to meet NFPA 72® (*National Fire Alarm and Signaling Code*®) requirements.

Modular design. A variety of functional modules are available to meet specific system requirements. Selections allow panels to be configured for either Stand-Alone or Networked fire control operation.

Panel Hardware

The Master Controller and Main System Supply are mounted in the upper section of the 4100ES cabinet.

3 available 4"x5" block spaces for additional option cards



Panel Hardware (continued)

4010ES Block Space Option Cards mount to the left of the 4010ES Main System Supply. There are 3 available 4" x 5" blocks for mounting 4010ES hardware options.

Other 4010ES Options: The 4010ES City Connect module or the optional Alarm Relay module mount directly to the Main System Supply. These options are mutually exclusive.

Network Media modules mount directly to the 4010ES Network Interface Card.

The TrueInsight Remote Gateway mounts on the back side of the 4010ES User Interface Panel.

The Battery Compartment located in the bottom of the 4010ES cabinet accepts two batteries, up to 33 Ah, without interfering with expansion module space.

The illustrations below identify mounting locations optional 4010ES modules.

TrueInsight Remote Gateway mounts on the back of the 4010ES User Interface Panel

Mechanical Description

- Mounting box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- The hinged User Interface panel easily opens for internal access
- Modules are power-limited (except as noted, such as relay modules)
- Doors include tempered glass inserts, boxes and doors are available in platinum or red
- Box and door/retainer assemblies are included with Basic Panel assemblies

Software Feature Summary

- TrueAlarm individual analog sensing with front panel information and selection access
- "Dirty" TrueAlarm sensor maintenance alerts, service and status reports including "almost dirty"
- TrueAlarm magnet test indication appears as distinct "test abnormal" message on display when in test mode
- TrueAlarm sensor peak value performance report
- **"*Install Mode*"** allows grouping of multiple troubles for uninstalled modules and devices into a single trouble condition (typical with future phased expansion); with future equipment and devices grouped into a single trouble, operators can more clearly identify events from the commissioned and occupied areas
- Module level ground fault searching assists installation and service by locating and isolating modules with grounded wiring
- ***"Recurring Trouble Filtering"*** allows the panel to recognize, process, and log recurring intermittent troubles (such as external wiring ground faults), but only sends a single outbound system trouble to avoid nuisance communications
- WALKTEST™ silent or audible system test performs an automatic self-resetting test cycle

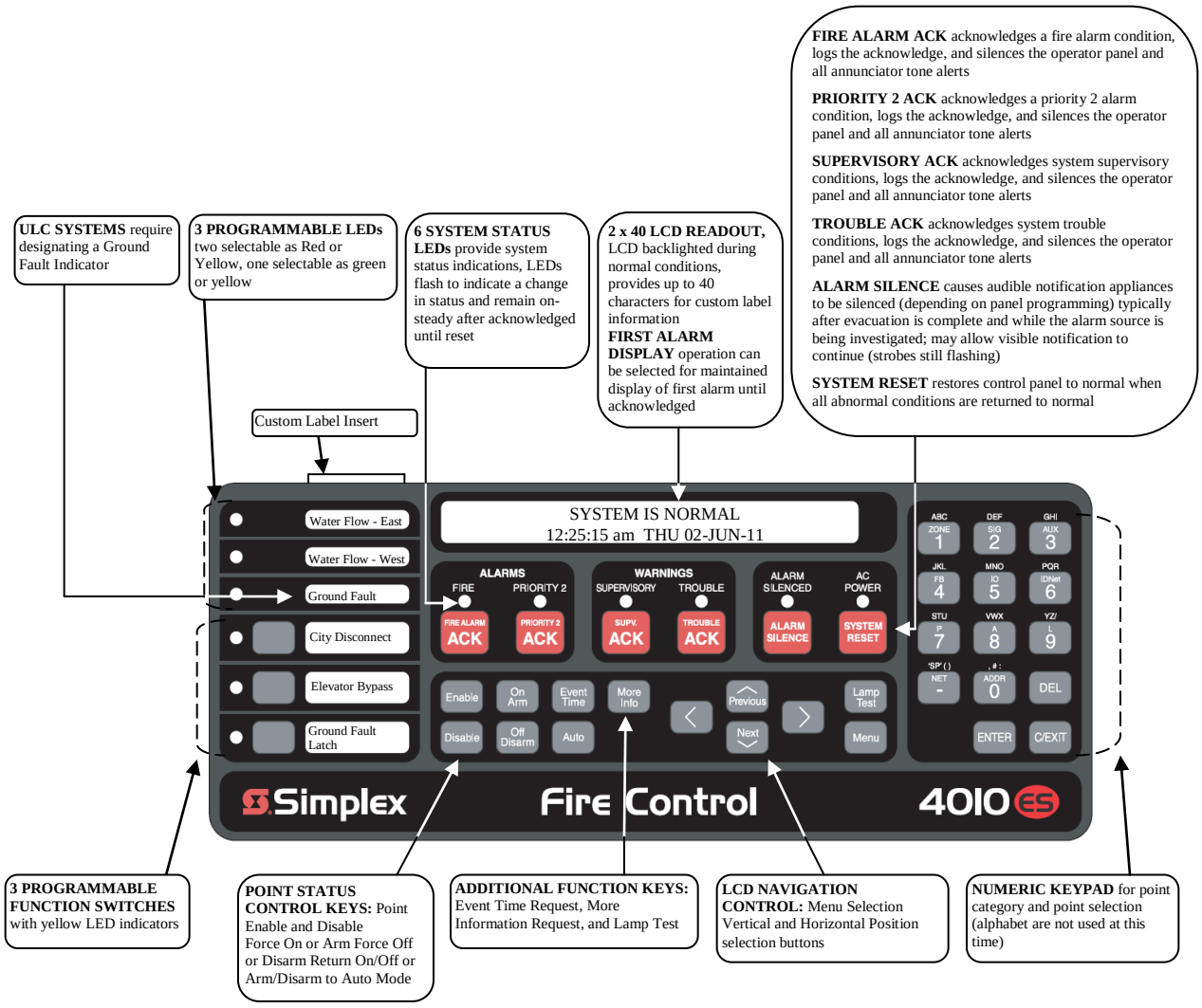
Operator Interface Features

- Convenient and extensive operator information is provided using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Convenient PC programmer label editing
- Password access control
- Alarm and Trouble History Logs (up to 2000 total events) are available for viewing from the LCD, or capable of being printed to a connected printer, or downloaded to a service computer

Convenient Status Information. With the locking door closed, the glass window allows viewing of the display, status LEDs, and available operator switches. Features include a two-line by 40-character, wide viewing angle (super-twist) LCD with status LEDs and switches as shown in the illustration below.

LED indicators describe the general category of activity being displayed with the LCD providing more detail. For the authorized user, unlocking the door provides access to the control switches and allows further inquiry by scrolling the display for additional detail.

The following illustration identifies the primary functions of the operator interface.



Compatible Peripheral Devices

The 4010ES is compatible with an extensive list of remote peripheral devices including printers, PC Annunciators and both conventional and addressable devices including TrueAlarm analog sensors.

Addressable Device Control

Overview. The 4010ES provides standard addressable device communications for IDNet compatible devices. Using a two wire communications circuit, individual devices such as manual fire alarm stations, TrueAlarm sensors, conventional IDC zones, and sprinkler waterflow switches can be interfaced to the addressable controller to communicate their identity and status.

Addressability allows the location and condition of the connected device to be displayed on the operator interface LCD and on remote system annunciators. Additionally, control circuits (fans, dampers, etc.) may be individually controlled and monitored with addressable devices.

Addressable Operation. Each addressable device on the communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Both Class B and Class A pathway operation are available. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuit for Class B operation. Devices with LEDs pulse the LED to indicate receipt of a communications poll and can be turned on steady from the panel.

IDNet+ Channel Capacity. The Main System Supply provides an IDNet+ signaling line circuit (SLC) that supports up to 248 addressable monitor and control devices intermixed on the same pair of wires.

IDNet+ Communications wiring specifications. IDNet+ circuits may be run on NEC 760 untwisted pair, twisted pair, or shielded twisted pair conductors.

IDNet+ Wiring Specifications

Size		18 AWG (0.82 mm^2)
Type		NEC 760 Wire (untwisted, twisted, or shielded twisted pair)
Farthest Distance from Control Panel per Device load	126-248	Up to 2500 feet (762 m)
	up to 125	Up to 4000 ft (1219 m)
Total Wire Length Allowed Class A or Class B, including “T-taps” for Class B wiring (total for both isolated circuits combined)		Up to 12,500 ft (3.8 km) Note: The sum of line-to-line capacitance plus the capacitance of either line-to-shield (if shield is present) = 0.6 µF maximum (total for both isolated circuits combined)

* Other circuits may require shielded wiring. Review your system with your local Simplex product supplier.

TrueAlarm System Operation

Addressable device communications include operation of TrueAlarm smoke and temperature sensors. Smoke sensors transmit an output value based on their smoke chamber condition and the CPU maintains a current value, peak value, and an average value for each sensor. Status is determined by comparing the current sensor value to its average value. Tracking this average value as a continuously shifting reference point filters out environmental factors that cause shifts in sensitivity.

Programmable sensitivity of each sensor can be selected at the control panel for different levels of smoke obscuration (shown directly in percent) or for specific heat detection levels. To evaluate whether the sensitivity should be revised, the peak value is stored in memory and can be easily read and compared to the alarm threshold directly in percent.

CO sensor bases combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network. (refer to data sheet S4098-0041 for details)

TrueAlarm heat sensors can be selected for fixed temperature detection, with or without rate-of-rise detection. Utility temperature sensing is also available, typically to provide freeze warnings or alert to HVAC system problems. Readings can be selected as either Fahrenheit or Celsius.

TrueSense® Early Fire Detection. Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 4010ES IDNet address. The panel evaluates smoke activity, heat activity, ***and their combination***, to provide TrueSense early detection. For more details on this operation, refer to data sheet S4098-0024.

Diagnostics and Default Device Type

Sensor Status. TrueAlarm operation allows the control panel to automatically indicate when a sensor is almost dirty, dirty, and excessively dirty. The NFPA 72 requirement for a test of the sensitivity range of the sensors is fulfilled by the ability of TrueAlarm operation to maintain the sensitivity level of each sensor. CO Sensors track their 5 year active life status providing indicators to assist with service planning. Indicators occur at: 1 year, 6 months, and when end of life is reached.

Modular TrueAlarm sensors use the same base and different sensor types (smoke or heat sensor) and can be easily interchanged to meet specific location requirements. This allows intentional sensor substitution during building construction when conditions are temporarily dusty. Instead of covering smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. The control panel will indicate an incorrect sensor type, but the heat sensor will operate at a default sensitivity to provide heat detection for building protection at that location.

Master Controller (CPU)

- The 4010ES Master Controller includes dedicated 2GB compact flash Mass Storage memory for on-site system information storage and convenient Ethernet service port access
- Convenient front panel accessed Ethernet port for quick and easy ***download*** of site-specific programming
- ***AND***, firmware enhancements are made via software downloads to the on-board flash memory
- Every downloaded job is automatically stored to Compact flash without overwriting earlier versions providing a means for recovering previous configurations
- Downtime is reduced because the system stays running during download
- Modifications can be ***uploaded*** as well as downloaded for greater service flexibility

Master Controller (CPU) continued

- Mass Storage allows job specific files to be store in the control panel such as test and inspection reports, record drawings, specifications, and more...
- Ethernet connectivity options include Building Network Interface Module (BNIC) and SafeLINC Internet Interface
- RUI (remote unit interface) communications port supports either Class B or X Pathway operation for remote annunciation equipment and for 4009 TrueAlert Controllers and TrueAlert Power Supplies

Main System Supply

- The Main System Supply provides the power source and the Input/Output connections for the basic 4010ES panel. The main features are listed in the Basic Panel description below.

Basic Panel Description

All 4010ES panels include an Operator Interface, Master Controller with 2GB Compact Flash, Class A or B Two-loop Isolated IDNet™ Communications (IDNet+) supports up to 248 addressable and analog sensing devices, 8 Amp power supply with up to 2 Amps of auxiliary power, 110 Ah (UL) / 50 Ah (ULC) battery charger (33 Ah max control panel cabinet), 4 Class A or B NACs rated @ 3 Amps each, 1 programmable auxiliary relay rated for 2 Amps @ 32 VDC, 1 RUI Class B or X communications port for remote annunciation devices, cabinet and door. Supports up to 20 internal and external card addresses. Other standard options may be provided depending on model (see basic panel model selection below for additional details on specific models).

Basic Panel Model Selection

Note: Supervisory and Alarm current specifications are for determining battery standby requirements. Current specifications consider no load on addressable channels (see addressable device load specifications for device load battery standby), RUI channel active, and 24 of 48 LEDs active (for 48 LED models)

Model	Features	Panel Color	Language and AC Voltage	Listing	Available Option Blocks	Supv.	Alarm
4010-9401	Basic panel with 2x40 LCD Operator Interface and (1) Two-loop Isolated IDNet+ Channel Class A or B with support for up to 248 addressable analog devices	Red	English 120 V	UL, FM	3 4"x5" blocks	316 mA	390 mA
4010-9402		Platinum					
4010-9403	Same as above with 48 LED annunciation	Red	English 120 V	UL, ULC, FM		336 mA	455 mA
4010-9404		Platinum					
4010-9405		Red	French 120 V	ULC, FM			
4010-9406		Platinum					

Addressable Device Load Specifications for Battery Standby

Addressable Channel	Device Load	Supv.	Alarm
Main System Supply IDNet+	With 248 Devices Add	199 mA	288 mA
	With 125 Devices Add	100 mA	165 mA
	With 50 Devices Add	40 mA	90 mA

Block Space Option Card Selection

Note: Supervisory and Alarm current specifications consider no load on addressable channels (see addressable device load specifications for device load battery standby)

Model	Features	Option Block Usage	Supv.	Alarm
4010-9901	VESDA HLI	1 Block	60 mA	60 mA
4010-9902	Modular Network Interface Card (requires two media modules below)	2 Vertical Blocks	30 mA	30 mA
4010-9818	- Network Media Card Wired	N/A (mounts to 4010-9902)	55 mA	55 mA
4010-9819	- Network Media Card Fiber Optic		25 mA	25 mA
4010-9908	4 Point Aux Relay Module	1 Block	15 mA	60 mA
4010-9912	Serial DACT	1 Block (must mount in block D under main system supply)	30 mA	40 mA
4010-9913*	SafeLINC	2 Vertical Blocks	115 mA	115 mA
4010-9914	Building Network Interface Card	2 Vertical Blocks	236 mA	236 mA
4010-9918	Dual RS232 Module	1 Block	60 mA	60 mA
4010-9920	8 Zone Initiating Device Circuit - Class B	2 Vertical Blocks (must mount top bay, left most blocks A & B)	75 mA	195 mA
4010-9921	8 Zone Initiating Device Circuit - Class A			

* UL/ULC Listed only

Additional Panel Option Selection (block space not used)

Model	Features	Mounting Requirements	Supv.	Alarm
4010-9909	City Connect Module w/ disconnect switches	Mounts on MSS, Mutually exclusive with 4010-9910 and 4010-9911	20 mA	36 mA
4010-9910	City Connect Module	Mounts on MSS, Mutually exclusive with 4010-9909 and 4010-9911	20 mA	36 mA
4010-9911	Alarm Relay Module	Mounts on MSS, Mutually exclusive with 4010-9909 and 4010-9910	15 mA	37 mA
N/A*	TrueInsight Remote Gateway	N/A, Mounts on Front Door	62 mA	62 mA

* Contact your local SimplexGrinnell office for more details

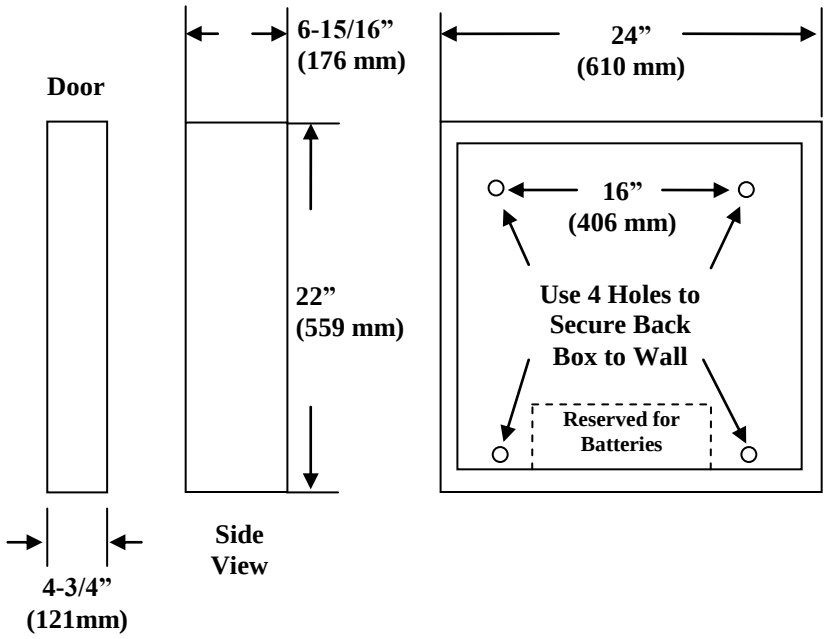
General Specifications

AC Input Specifications	
120 VAC Fire Alarm Control Panels	4 A Maximum, 120 VAC @ 60 Hz nominal

Cabinet Specifications

Cabinet	Height	Width	Depth	Depth with Door
1 Bay Box	22 in. (559 mm)	24 in. (610 mm)	6-15/16 in. (176 mm)	11-11/16 in. (297 mm)

One-Bay Back Box and Door



Miscellaneous Accessories

PID	Description
4100-9843	8 Yellow LED Kit
4100-9844	8 Green LED Kit
4100-9845	8 Red LED Kit
4100-9855	8 Blue LED Kit

End user Programming Tools

PID	Description
4100-8802	End User Programming Unit Software
4100-0292	Custom Label Editing (USB Dongle)
4100-0295	Port Vectoring Setup and Control (USB Dongle)
4100-0296	User Group / Passcode Editing (USB Dongle)
4100-0298	WalkTest Configuration Setup and Control (USB Dongle)

4010ES Factory Programming

PID	Description
4010-8810	4010ES Factory Programming
4010-0831	Custom Label and Panel Programming

4010ES Card Address Allocation

The 4010ES has a maximum Internal and External Card Address Limit of 20 Card Addresses. Use the Table below to calculate 4010ES card address allocation.

INSTRUCTIONS: Below is a list of 4010ES equipment and the quantity of card addresses they consume

1) For the applicable control panel, write in the Card Address Consumption value in the Card Address Allocation column (note: only select 1 control panel)

2) For the option cards to be installed on the 4010ES, write in the Card Address Consumption value in the Card Address Allocation column

3) Total the Card Address Allocation column (total must not exceed 20)

PID	Description	Card Addresses Consumption	Card Address Allocation	Notes
Control Panels (Select One)				
4010-9401, -9402, -9501, or -9502	2x40 Display, Single IDNet Channel, Single Bay Box	2		
4010-9403, -9404, -9405, or -9406	2x40 Display, Single IDNet Channel, 48 Pluggable LED Module	3		4010-9405 & -9406 Canada only
Panel Option Cards (Select As Required)				
4010-9901	Flat Vesda HLI	1		
4010-9902	Flat Network Card	1		
4010-9908	4 Point Flat Aux Relay Module	1		
4010-9912	Serial DACT	1		
4010-9913	SafeLinc	1		
4010-9914	Building Network Interface Card	1		
4010-9918	Dual RS232 Module	1		
4010-9920	8 Zone Initiating Device Circuit - Class B	1		
4010-9921	8 Zone Initiating Device Circuit - Class A	1		
Remote Power / Notification (Select As Required)				
4009-9401	4009T TrueAlert Controller 120V	1		
4009-9402CA	4009T TrueAlert Controller 120V w/ Low Battery Cutout	1		Canada Only
4009-9813	Transponder Interface Card	1		
4100-5120	120V Domestic TrueAlert Power Supply	1		
4100-5121	120V Canadian TrueAlert Power Supply	1		Canada Only
Remote Annuncition (Select As Required)				
4100-9401	Remote Unit Interface Panel w/FUI – Red – Domestic & Canadian English	2		
4100-9403	Remote Unit Interface Panel w/FUI – Platinum – Domestic & Canadian English	2		
4100-9421	Remote Unit Interface Panel w/FUI – Red – Canadian French	2		
4100-9423	Remote Unit Interface Panel w/FUI – Platinum – Canadian French	2		Canada Only
4100-9441	Remote Unit Interface Panel w/FUI – Red – International	2		
4100-9443	Remote Unit Interface Panel w/FUI – Platinum – International	2		
4606-9102	4010ES RUI LCD Annunciator (English)	1		
4606-9102BA	4010ES RUI LCD Annunciator (English)	1		
4606-9102CF	4010ES RUI LCD Annunciator (French)	1		Canada Only
4100-7401	24 Point I/O Graphic Module (requires mounting cabinet)	1		
4100-7402	64 Switch and 64 LED Driver Module with 32 on-board LED drivers (requires mounting cabinet)	1		
	Total Card Addresses - Not to Exceed 20	**TOTAL**		

Additional Data Sheet References for 4010ES Compatible Equipment

4010ES Releasing Panels and Accessories, 4606 LCD Annun, Remote InfoAlarm Displays, Remote Graphic Annunciators, 110Ah Batt Chargers and Cabinets, BNIC, SafeLINC, SDACT, IDNet+, NIC, Fiber Modem Expansion Cabinets, 4009 IDNet, 4009T and TPS, Printer, PC Annunciator, IDNet Sensors and Devices

Agent Release Applications	S4010-0005			4009 TrueAlert Controller & PS	S4009-0003
Building Network Interface	S4100-0061	Addr. Device Compatibility	S4090-0011	4009 IDNet NAC Extender	S4009-0002
SafeLINC Internet Interface	S4100-0028	Remote LCD Annunciator	S4606-0002	4003EC Voice Control Panel	S4003-0002
		Graphic I/O Modules	S4100-0005	Remote Battery Charger	S4081-0002
VESDA HLI	S4100-0026	Remote InfoAlarm Cmd Ctr	S4010-0008	Remote Printer	S4190-0011
SDACT	S2080-0009	Network Communications	S4100-0056	PC Annunciator	S4190-0013
Fire Alarm Network Overview	S4100-0055			Multi-Signal Fiber Optics	S4100-0049

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Simplex®

LifeAlarm® Fire Alarm Controls

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

4009 IDNet™ NAC Extender for Control from 4010, 4010ES, 4100ES/4100U IDNet Communications, or Conventional NACs

Features

Provides additional notification appliance circuit (NAC) capacity with flexible operation modes and power-limited design

Four, Class B NACs are standard:

- Rated 2 A each for conventional reverse polarity 24 VDC notification appliances and providing multiple operation modes
- Can be selected to provide synchronization for Simplex® visible notification strobe flashes
- Capable of controlling TrueAlert® non-addressable notification appliances operating with SmartSync™ two-wire control mode**

Input control options:

- IDNet addressable communications from a Simplex model 4010, 4010ES, 4100U, or 4100ES Fire Alarm Control Panel**
- Or from one or two conventional 24 VDC NACs with multiple output control options

IDNet communications control benefits:

- Provides status monitoring and individual NAC control using a single address per 4009 IDNet NAC Extender
- Supports IDNet "Device Level" earth fault location

WALKTEST™ operation is available with either input choice

Internal 8 A power supply/battery charger:

- Charges internal batteries up to 12.7 Ah or up to 18 Ah batteries in external cabinet
- Provides status monitoring of battery, input power, and earth faults
- Rated 8 A for "Special Application" appliances; including Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, horn/strobes, and speaker/strobes
- Rated 6 A for "Regulated 24 DC" appliance power

Optional 4009 IDNet NAC Extender modules:

- IDNet Communications Repeater provides Class B or Class A output
- IDNet Communications Fiber Optic Receiver/Repeater, available as Class B or Class X
- Four additional Class B NACs, rated 1.5 A for Special Application appliances; 1 A for Regulated 24 DC appliance power
- Class A, Two Circuit Adapter Module

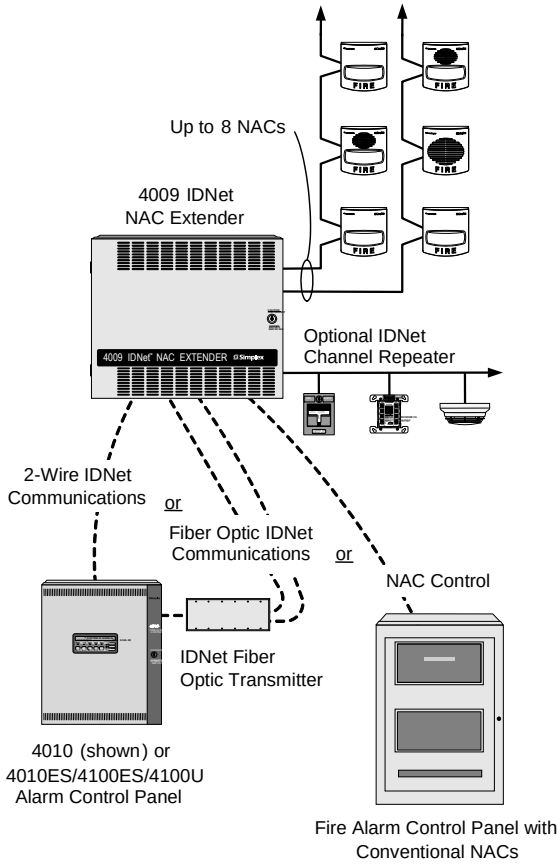
UL Listed to Standard 864

External Accessories

IDNet communication fiber optic transmitters:

- For applications requiring the data integrity available with fiber optic communications
- Available as Class B or Class X
- Mounts in standard six-gang electrical box

External battery cabinet for 18 Ah batteries



4009 IDNet NAC Extender Connection Reference Drawing

Introduction

ADA Compliance. Complying with the notification requirements of ADA (Americans with Disabilities Act) may require more notification appliance power than is available within the fire alarm control panel. When additional power is required, a Simplex 4009 IDNet NAC Extender can provide up to 8 A of NAC power with up to eight, supervised reverse polarity NACs.

Location Flexibility. The 4009 IDNet NAC Extender can be mounted close to a compatible dedicated host panel or can be located remotely for convenient power distribution. Multiple operation modes and multiple connection options further increase location flexibility.

Additional Information. For additional operation detail and application information, refer to Installation Instructions 574-181 and field wiring diagram 842-068.

* ULC listed model is 4009-9202CA. 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 7300-0026:214 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. 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 SimplexGrinnell LP, Westminster.

** 4100U requires revision 11 software or higher for compatibility. 4010 requires revision 2 software or higher for compatibility.

Application and Operation Information

IDNet Addressable Communications Compatible. Up to ten (10), 4009 IDNet NAC Extenders can be controlled per 4010ES/4100ES/4100U IDNet communications channel; up to five (5) can be controlled on the 4010 IDNet communications channel. Each output NAC can be individually controlled for general alarm or selective area notification requiring only one point address per Extender. Individual Extender NACs can also be manually controlled from the host panel. IDNet controlled extenders will inform the host panel of troubles via IDNet communications. 4010ES/4100ES/4100U control panels control using multi-point rules, refer to data sheet S4090-0011 for details.

Optional IDNet Repeaters. IDNet communications can be repeated with the optional IDNet Repeater Module or with the optional Fiber Optic Receiver Module. Up to 100 of the IDNet channel points can be repeated once (refer to pages 3 and 5 for details). Repeated IDNet communications also support the "device level" earth fault location utility of the host panel.

Hardwire Control Applications. For applications where an existing (or new) conventional NAC needs additional power, the 4009 IDNet NAC Extender can be controlled directly from the NAC. Either one or two NACs, from either the same, or from different host fire alarm control panels, can be connected to control the 4009 IDNet NAC Extender output NACs. Multiple control selections provide flexible operation. (Refer to page 4 for more detail.) Alarms from the host panel will activate the four, 4009 IDNet NAC Extender NACs (or optionally, eight NACs) to extend the alarm.

The 4009 IDNet Extender monitors itself and each of its output NACs for trouble conditions, including earth faults. Extenders wired to conventional NACs will indicate a trouble by opening the path to the NAC's end-of-line resistor, but retaining the ability to respond to alarms. Individual troubles are also annunciated by LEDs located on the 4009 IDNet NAC Extender main circuit board. (Refer to page 7 for more diagnostic information.)

Product Selection

Standard Models

Model	Description	
4009-9201	120 VAC input	4009 IDNet NAC Extender with 4, Class B NACs and 8 A power supply
4009-9202CA*		
4009-9301	240 VAC input	

* ULC listed model

Optional Modules (for on-site installation)

Model	Description		Comments
4009-9807	Additional four point NAC module, rated 1.5 A Special Application appliances; 1 A for Regulated 24 DC appliance power, Class B		One maximum
4009-9808	Dual Class A adapter (for two NAC outputs)		Select as required (4 maximum)
4009-9809	IDNet Repeater, output is Class A or Class B		Select **either** an IDNet Repeater **or** a Fiber Optic Receiver as required
4009-9810	Fiber Optic Receiver	Class B	
4009-9811		Class A (IDNet), Class X (fiber)	
4009-9805	Red Appliqué for door		Select if required
2975-9801	Semi-Flush Trim Kit	Beige trim	1-7/16" wide (78 mm), use if required for semi-flush installations
2975-9802		Red trim	

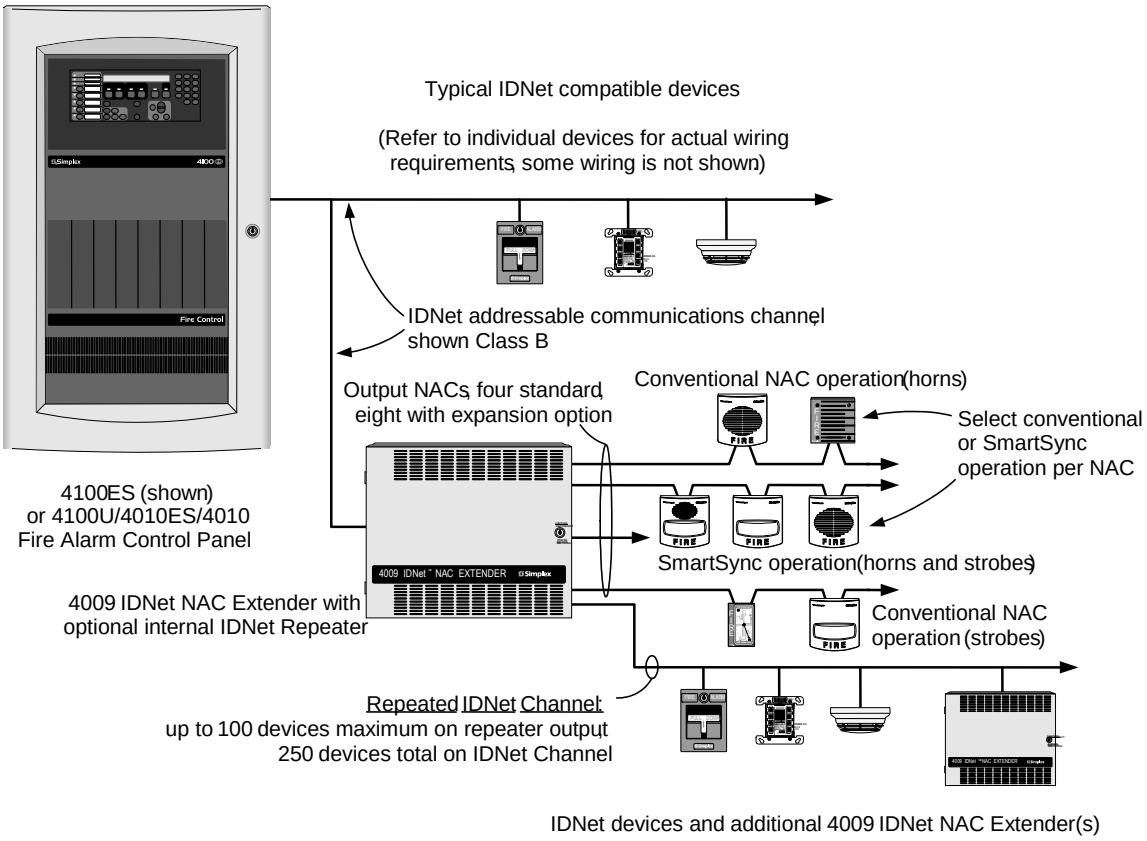
Battery Selection (select battery size per system requirements)

Model	Description	Comments
2081-9272	6.2 Ah Battery, 12 VDC	Two batteries are required, 24 VDC operation
2081-9274	10 Ah Battery, 12 VDC	
2081-9288	12.7 Ah Battery, 12 VDC	
2081-9275	18 Ah Battery, 12 VDC	Requires external battery cabinet, two batteries are required, 24 VDC operation

External Accessories (select per system requirements)

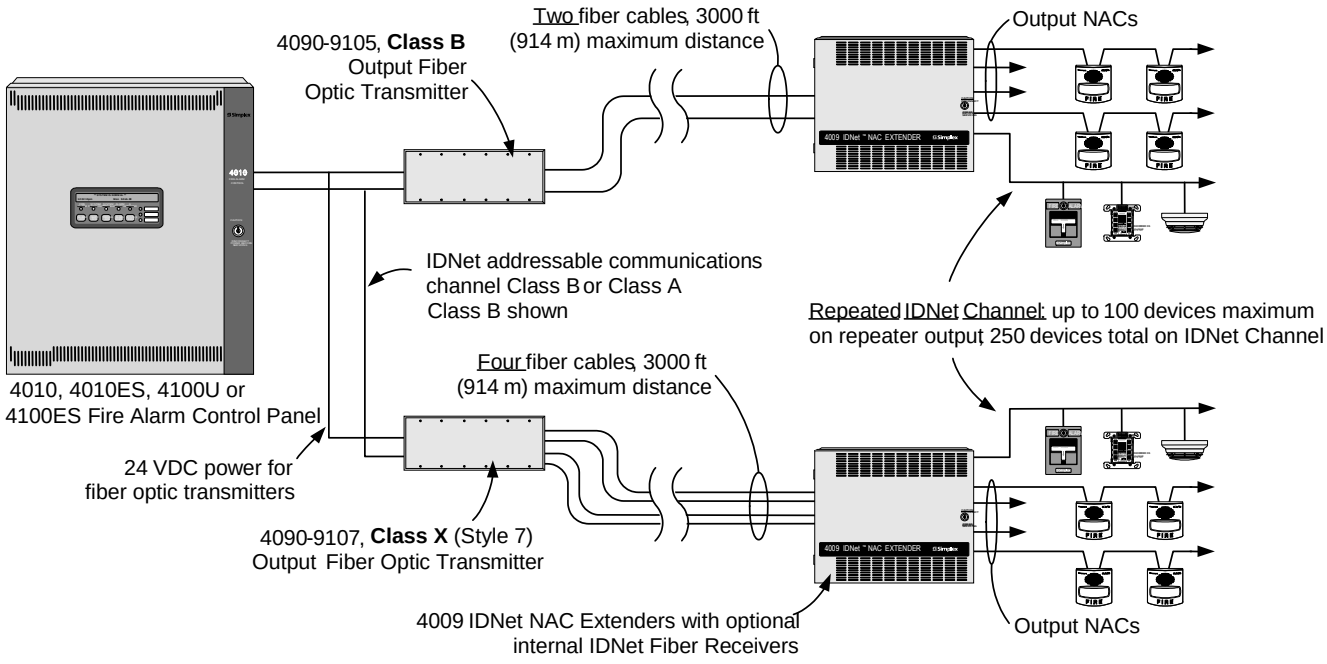
Model	Description		Comments
4090-9105	IDNet Fiber Optic Transmitter	Class B operation	Mounts in six-gang electrical box, refer to page 4 for mounting details
4090-9107		Class X operation	
4009-9801	External battery cabinet for up to 18 Ah batteries, beige		16-1/4" W x 13-1/2" H x 5-3/4" D (413 mm x 343 mm x 146 mm)
4081 Series	End-of-Line Resistor Harnesses; see data sheet S4081-0003 for details		

Typical IDNet Connection Example



NOTE: Up to ten (10) 4009 IDNet NAC Extenders may be connected per 4010ES, 4100ES or 4100U IDNet channel, up to five (5) on the 4010 IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver).

Typical Fiber Optic System Connections



NOTE: Up to ten (10) 4009 IDNet NAC Extenders may be connected per 4010ES, 4100ES or 4100U IDNet channel, up to five (5) on the 4010 IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver). Fiber optic transmitters connect to only one 4009 IDNet NAC Extender.

Hardwire Control Connection Information

NAC Input Selections. The 4009 IDNet NAC Extender can be selected to:

- Track input NAC operation **or** to provide a locally generated code, selectable per NAC input
- If selected for local coding, NAC outputs can be either **Temporal Coded** or **60 Beats/min March Time Coded,** one code selection per extender (input NACs must be on continuous with Alarm)
- Additionally, NAC outputs can be selected to provide the Simplex strobe synchronization signal. This signal will synchronize the flashes of synchronized strobes but will be ignored by free-run strobes and audible devices. (Strobes are for operation by noncoded NACs.)

NAC input to NAC output control can be selected for standard and optional NACs per the following table:

Conventional NAC Output Operation Options

Input	A	B	C
NAC 1	NACs 1 & 2, 5 & 6	NACs 1-4	NACs 1-8
NAC 2	NACs 3 & 4, 7 & 8	NACs 5-8	None

SmartSync NAC Output Operation

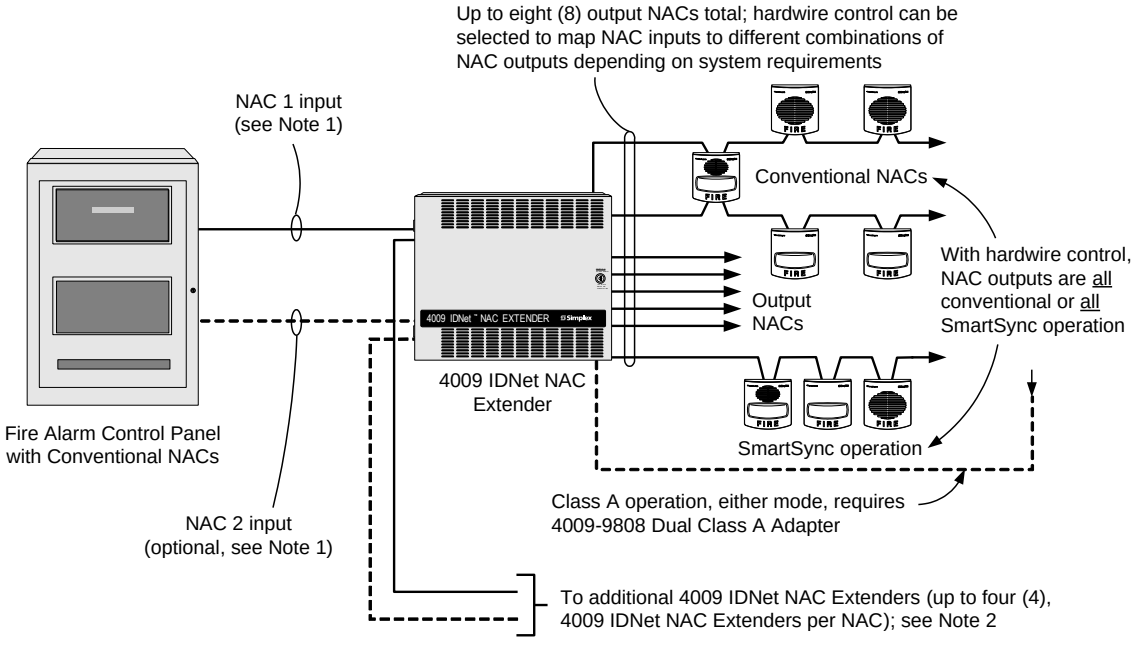
Input	NAC Control Function	
NAC 1	Strobe Control	All NAC outputs (1-8)
NAC 2	Horn Control	

SmartSync Notification Appliance Control

The TrueAlert Notification Appliance product line includes addressable and non-addressable operation. Non-addressable models are available with 2-wire SmartSync operation or conventional 4-wire operation. The following details apply to use with the 4009 IDNet NAC Extender:

- TrueAlert non-addressable models with SmartSync operation allow audible notification to be separately controlled over the same wire pair that controls visible notification
- 4009 IDNet NAC Extenders can be selected to provide SmartSync operation whether controlled by IDNet communications or conventional NACs
- IDNet control allows output NACs to be **individually selected** for conventional **or** SmartSync operation
- With NAC input control, **all** output NACs are selected for either conventional **or** SmartSync operation
- Refer to data sheet S4009-0003 for TrueAlert Addressable operation details, contact your local Simplex product supplier for further information on specific TrueAlert notification appliances

Hardwire Control NAC Connection One-Line Reference Diagram



Notes:

1. For separate audible and visible output NAC control, or SmartSync NAC output operation, two (2) input NACs are required. NAC 1 is "on-until-reset" and NAC 2 is "on-until-silenced."
2. To synchronize strobe flash outputs for up to four (4) 4009 IDNet NAC Extenders, use the synchronized strobe output from a Synchronized Flash Module (4905-9914 for Class B operation, 4905-9922 for Class A operation) or, if available, from a NAC selected to provide synchronized strobe flash output. **NOTE: DO NOT USE a NAC selected for SmartSync operation for this function.**

Refer to Installation Instructions 574-181 for additional information and application guidance

4009 IDNet NAC Extender Specifications

Input Ratings	120 VAC Input (4009-9201)	3A @ 102-132 VAC, 60 Hz
	240 VAC Input (4009-9301)	1.5A @ 204-264 VAC, 50/60 Hz
	Hardwire Control from External NACs, Input Requirements	Conventional reverse polarity operation
		5 mA maximum; 16 to 33 VDC
Output Ratings	Total Rating	8 A, Special Application appliances 6 A, Regulated 24 DC appliance power
	Standard NACs	2 A each, Special Application or Regulated 24 DC appliance power
	Optional NACs (requires 4009-9807)	1.5 A each, Special Application appliances 1 A each, Regulated 24 DC appliance power
	Special Application Appliances	Simplex 4901, 4903, 4904, and 4906 Series non-addressable horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)
	Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required
	Strobe Operation	Up to 33 strobes per NAC can be synchronized; output NACs configured for Simplex synchronized strobe operation are synchronized to each other
	Auxiliary Output	500 mA @ 24 VDC nominal

Optional Modules Ratings

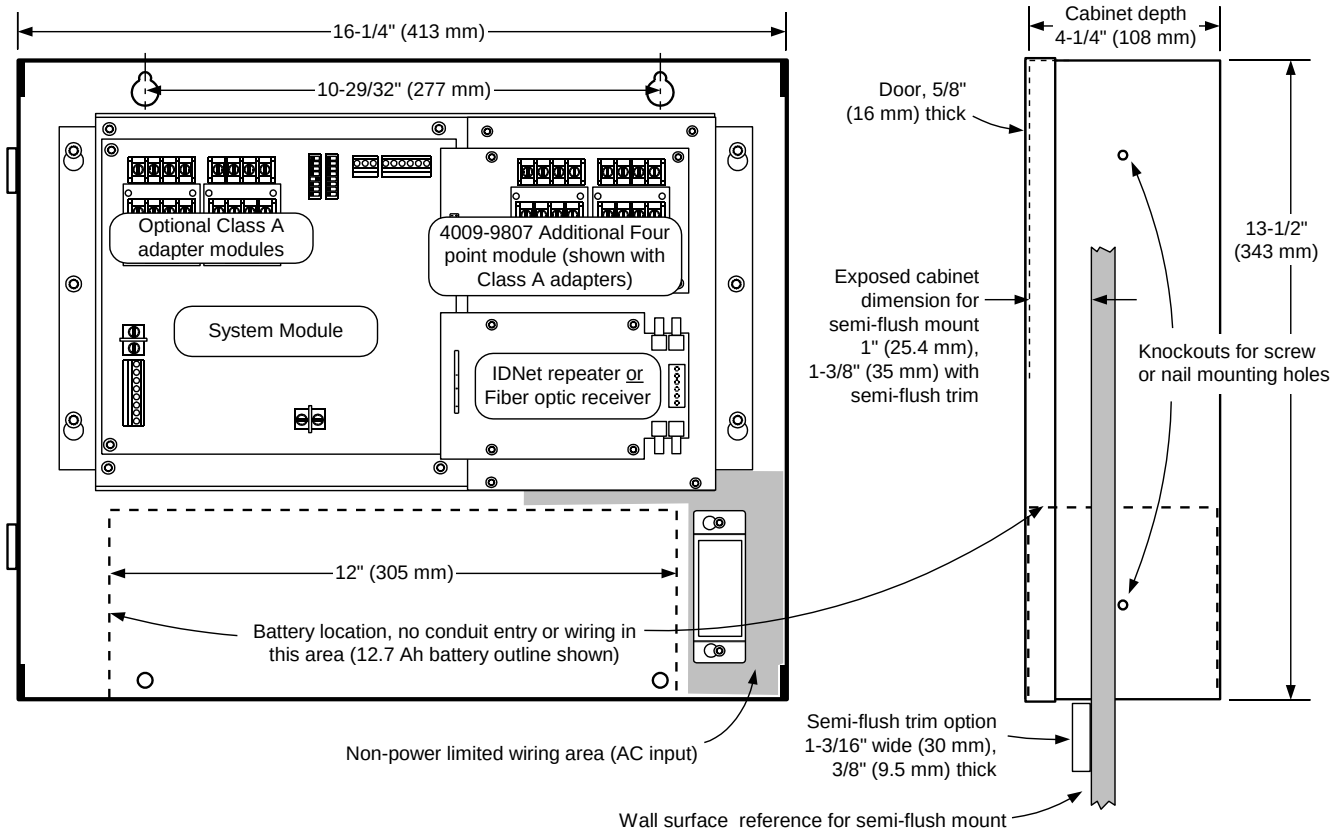
IDNet Repeater Module (4009-9809)	Input Power	70 mA @ 24 VDC, system supplied
	IDNet Input, One Address	Maximum distance from IDNet source is 2500 ft (762 m)
	IDNet Output Specifications	Repeated IDNet output for up to 100 devices (total IDNet devices not to exceed 250 per channel)
		Maximum distance to farthest device is 2500 ft (762 m)
		Total distance including “T-taps” is 10,000 ft (3048 m)
		Class A loop maximum distance is 2500 ft (762 m), no “T” taps
Fiber Optic Receiver Modules		
Input Current		4009-9810, Class B, 65 mA @ 24 VDC, system supplied
		4009-9811, Class X, 80 mA @ 24 VDC, system supplied
IDNet Output Specifications		Same as those for Repeater Module (see above)
Fiber Optic Transmission Distance		3000 ft (914 m) maximum
General (LED status indicators are listed on page 7, dimensions and mounting details are on page 6)		
Operating Temperature		32° to 120° F (0° to 49° C)
Operating Humidity Range		10% to 90% RH from 32° F to 104° F (0° C to 40° C)
Wiring Connections*		Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)

Fiber Optic Transmitter Specifications

Input Voltage	18.9-32 VDC from compatible listed fire alarm supply
Input Current	4090-9105, Class B, 30 mA @ 24 VDC
	4090-9107, Class X, 35 mA @ 24 VDC
Fiber Optic Connections and cable requirements	Multimode, graded index, 50/125µm, 62.5/125 µm, 100/40 µm, or 200 µm
	Type ST connectors
	4090-9105, Class B operation, two fiber cables required
	4090-9107, Class X operation, four fiber cables required
Module Size (with mounting bracket)	6-13/16” W x 3-3/4” H x 1-1/8” D (173 mm x 95 mm x 29 mm)
On-board Status Indicators	Green LED flashing = transmit
	Red LED flashing = receive
	Separate red LED on 4090-9107 = Class X receive
Communications	Simplex IDNet
Fiber Optic Transmission Distance	3000 ft (914 m) maximum
Wiring Connections*	Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)
Operating Humidity	10% to 90% RH from 32° to 104° F (0° to 40° C)
Operating Temperature	32° F to 120° F (0° to 49° C)

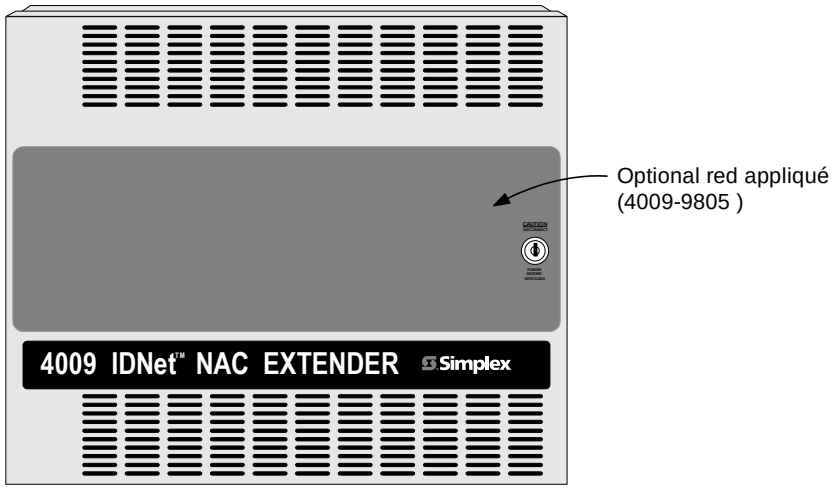
* Metric wire equivalents: 18 AWG = 0.82 mm^2; 12 AWG = 3.31 mm^2

4009 IDNet NAC Extender Mounting and Module Placement Information

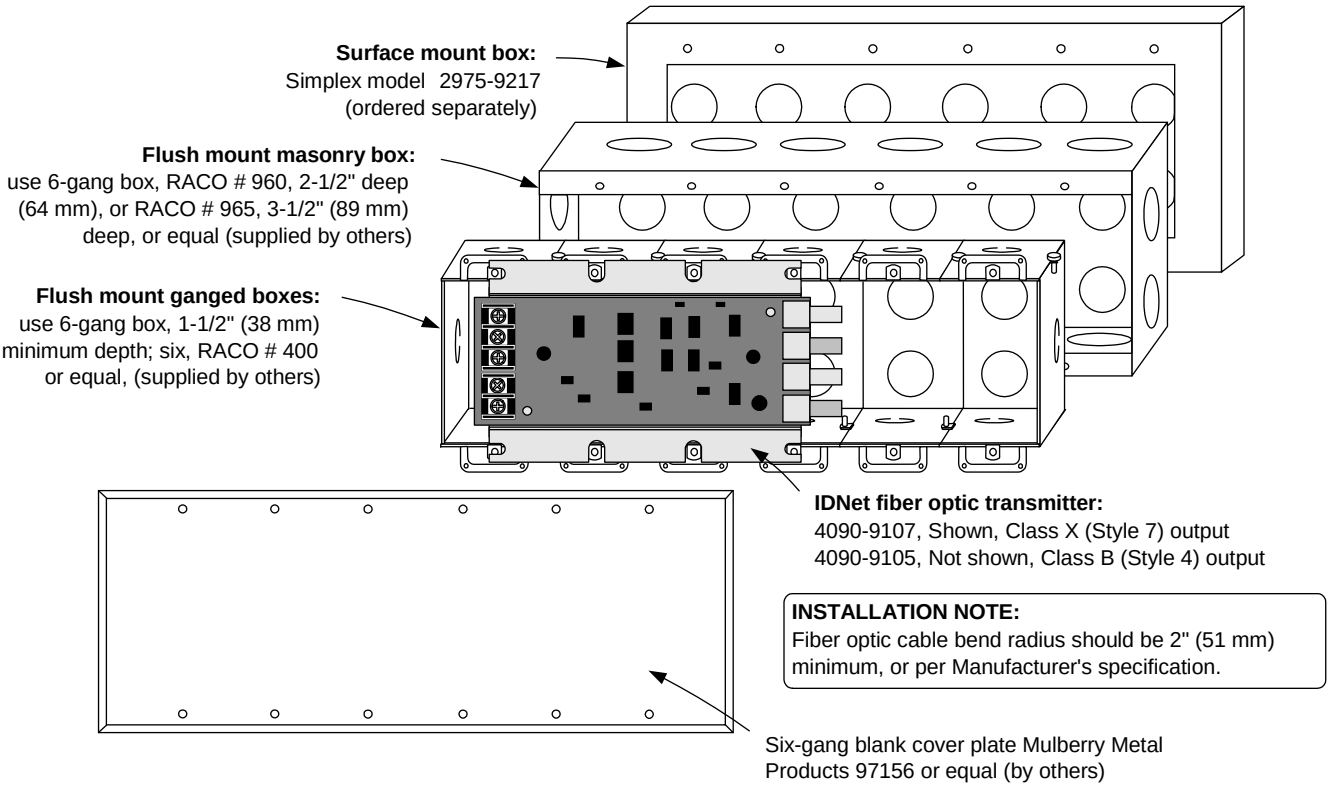


NOTE: Recommended conduit entrance varies with module selection. Refer to general installation instructions 574-181, specific module installation instructions, and to field wiring diagrams 842-068 before locating conduit entrance.

4009 IDNet NAC Extender Cabinet with Door Detail



4090-9105/9107 IDNet Fiber Optic Transmitter Mounting Information



Service Diagnostic Features

Power-up Self-Diagnostics. Upon power-up, the 4009 IDNet NAC Extender tests each module and performs earth fault diagnostics. Trouble conditions are communicated to the host control panel and are also displayed on diagnostic status LEDs in the 4009 IDNet NAC Extender. When connected via IDNet communications, detailed status information is available at the host. When controlled with conventional NAC inputs, common troubles are signaled by providing a polarized open circuit that disconnects the NAC wiring from its end-of-line resistor but still allows a reversed polarity alarm to be received.

Door Mounted Reference Label. The 4009 IDNet NAC Extender has a detailed programming and diagnostic label inside the front door that provides a quick reference for both installation and checkout.

LED Status Indicators are provided for the following:

- **Each NAC** (standard and optional) has a dedicated yellow LED that:
  - During supervision provides a slow flash to indicate a short circuit condition and a fast flash to indicate an open circuit
  - During an alarm, the LED follows the NAC output (on steady or flashing with coded output)
- **Four, general status yellow LEDs** provide nine separate indications listed in priority of urgency. As a trouble is eliminated, any remaining trouble(s) will then be indicated until the 4009 IDNet NAC Extender is returned to normal operation.
- **AC power status** is indicated by a green LED that is on when AC is normal. During low AC (brownout) conditions or with no AC, the LED is off. Additional power and battery status is indicated by the general status LEDs.

4009 IDNet NAC Extender Current Chart

Panel Module Selection (shaded model numbers are optional modules)

Model	Description		Supervisory Current	Actual Supervisory	Alarm Current	Actual Alarm
4009-9201	120 VAC input	Basic Panel	85 mA	85 mA	185 mA	185 mA
4009-9301	240 VAC input					
4009-9807	Additional Four Point NAC		40 mA	+	+ NAC loads (add below)	+ NAC loads (add below)
4009-9808	Dual Class A Adapter (current included in basic panel value)		–	–	–	–
4009-9809*	IDNet Repeater		70 mA	+	70 mA	+
4009-9810*†	Fiber Optic Receiver, Class B		65 mA		65 mA	
4009-9811*†	Fiber Optic Receiver, Class X		80 mA		80 mA	
IDNet Devices, 0.7 mA each, maximum of 100 (see note 5)			Total devices x 0.7 mA each	+	Total devices x 0.7 mA each	**(A1)** +
Auxiliary Power Output, calculate per total device requirements (see note 5)			500 mA maximum	+	500 mA maximum	**(A2)** +
			Total Supervisory Current =	**(A)** +		
					Total 4009 IDNet NAC Extender Panel Alarm Current =	**(B1)**

* Only one of these three modules can be chosen for a single 4009 IDNet NAC Extender.

† **NOTE:** IDNet Fiber Optic Transmitter current is supplied from the host fire alarm control panel.

NAC Loads

NAC Type	NAC Circuit #	NAC Alarm Current
Standard Panel NACS, 2 A maximum per NAC (see note 5)	Circuit 1	+
	Circuit 2	+
	Circuit 3	+
	Circuit 4	+
Optional Four Point NAC Module, 1.5 A maximum per NAC (see note 5)	Circuit 5	+
	Circuit 6	+
	Circuit 7	+
	Circuit 8	+
	Total NAC Loads Alarm Current =	**(C)**
	Total 4009 IDNet NAC Extender Panel Alarm Current (enter B1 from above) =	**(B2)** +
	Total Alarm Current =	**(D)**

Procedure:

1. Calculate total panel supervisory current (A).
2. Calculate total panel alarm current (B1) [convert mA to A, example: 350 mA = 0.35 A]. Copy (B1) into block (B2).
3. Calculate total NAC loads alarm current from notification appliance ratings (C).
4. Add (C) + (B2) to determine total alarm current (D).
5. Total of IDNet Device Current (A1) + Auxiliary Power Output Current (A2) + NAC Loads Alarm Current (C) is 8 A maximum.
6. Refer to Simplex battery selection document 900-012 for recommended battery size for specific standby requirements (i.e. 24 hours supervisory, 5 minutes of alarm). Internal cabinet space is provided for batteries up to 12.7 Ah.

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Fire Alarm Control Panel Accessories

*Listings**

System Batteries, Sealed Lead-Acid; with Applications Reference for Battery Cabinets, and Battery Cabinets with Charger

Features

Rechargeable, sealed lead-acid batteries:

- Lead-calcium grid structure with immobilized electrolyte in absorbent separator
- Low maintenance with no need to add water
- Low self-discharge characteristics
- One-piece, high impact polystyrene cell cover with high reliability dual seal construction
- UL 924 recognized pressure relief valves

Available in a variety of capacities:

- Batteries for internal mounting range from 6.2 Ah up to 50 Ah, depending on control panel cabinet size
- Larger batteries, up to 110 Ah, mount in external battery cabinets with models available with internal chargers

Battery cabinets with chargers:

- Battery cabinets with charger communicate with their connected fire alarm control panel and are available for 4100ES/4010ES/4100U Series and 4010 Series panels

Description

Simplex® rechargeable sealed-lead acid batteries provide reliable and repeatable discharge and recharge characteristics for use in fire alarm and other systems applications. They are designed with immobilized electrolyte in an absorbent separator, allowing them to provide rated capacity on the first cycle.

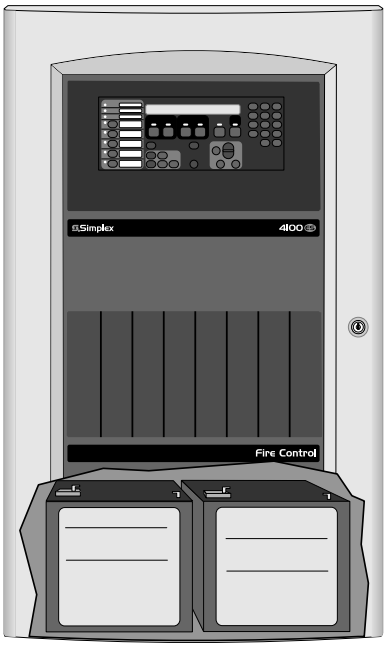
Because of their sealed construction, packaging is allowed within the system electronics enclosure (see illustration on page 2). When this is applicable, the quantity of system cabinets and the battery wiring distances are both minimized. Where required, external battery cabinets can be close-nippled to the control panel to house larger batteries with battery chargers available in some battery cabinet sizes.

Battery Details

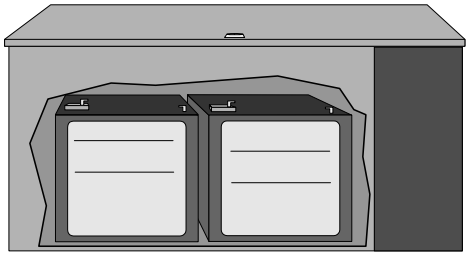
Charging. These batteries are intended to be used with compatible Simplex battery chargers.

Series Connections. These batteries are required to be connected in series to produce 24 V system voltage. Battery sets must be of identical voltage, model number, appearance, and approximately the same date of manufacture for proper operation.

Testing. Battery capacity testing is recommended to be performed by using a sealed lead-acid battery tester designed to withdraw a minimum of battery charge. The preferred tester applies a variety of amplitude and duration controlled test pulses that compares terminal voltage against those predicted for the specific battery size. (Testing is available through your local Simplex product supplier.)



Compatible Sealed Lead-Acid Batteries can be Installed Inside Fire Alarm Control Panel Cabinets



Remote Battery Cabinets are Available for Larger Battery Requirements

Battery Details *(Continued)*

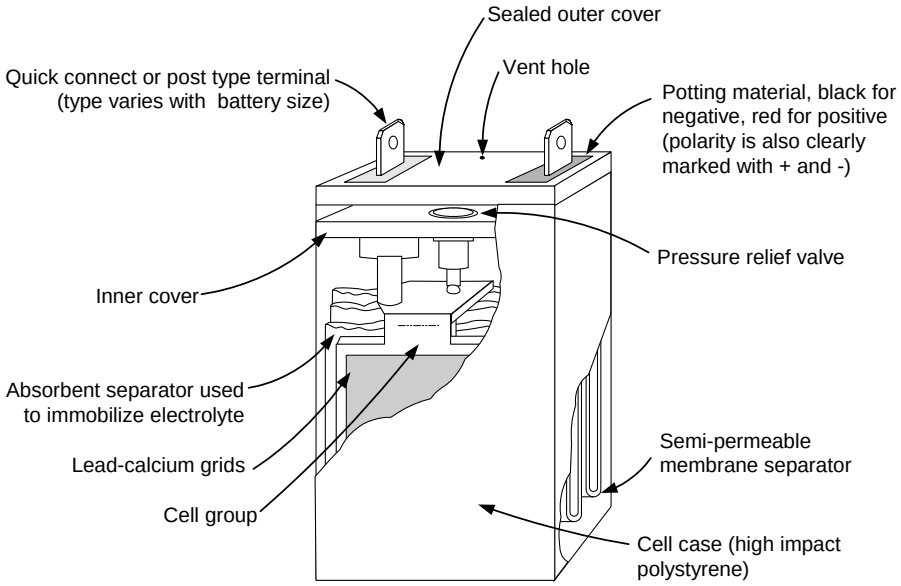
Shipping. Sealed lead-acid batteries are shipped via ground or sea transportation only. They are not shipped via air.

Disposal. Battery chemicals and materials can be recycled. Refer to information shipped with the battery or on its case. Return to the battery manufacturer or to a similarly qualified battery processing facility for proper disposal.

* Refer to details on page 4 and to the referenced individual product data sheets for agency listing status of battery cabinets and chargers. The batteries detailed in this document meet the requirements of UL, ULC, and Factory Mutual for use with respective equipment battery chargers as listed on page 3. Contact your local Simplex product supplier for proper battery selection per system requirements. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Battery Construction Reference

Actual appearance will vary with battery size.



Battery Size Specifications

Battery Model	Capacity @ 20 Hour Discharge Rate	Width*	Depth*	Height with Terminals	Approximate Weight*
2081-9272	**6.2 Ah**	6-1/8” (156 mm)	2-5/8” (67 mm)	4” (102 mm)	5.75 lbs (2.6 kg)
2081-9274	**10 Ah**	6” (153 mm)	4-1/16” (103 mm)	4” (102 mm)	9.2 lbs (4.2 kg)
2081-9288	**12.7 Ah**	6” (153 mm)	4” (102 mm)	4” (102 mm)	9 lbs (4.1 kg)
2081-9275	**18 Ah**	7-1/4” (184 mm)	3-3/8” (86 mm)	6-5/8” (168 mm)	14.3 lbs (6.5 kg)
2081-9287	**25 Ah**	6-5/8” (168 mm)	5” (127 mm)	7” (178 mm)	19.4 lbs (8.8 kg)
2081-9271 (rectangular case, typically for service)	**33 Ah**	12-1/2” (318 mm)	3-3/8” (86 mm)	7-1/16” (179 mm)	26.6 lbs (12.1 kg)
2081-9276 (“square” case, use for new)	**33 Ah**	7-3/4” (197 mm)	5-1/4” (133 mm)	6-3/4” (171 mm)	26.5 lbs (12 kg)
2081-9296	**50 Ah**	9” (229 mm)	5-1/2” (140 mm)	8-7/8” (225 mm)	41.8 lbs (19 kg)
2081-9279	**110 Ah**	11-3/16” (284 mm)	10-1/2” (267 mm)	9” (230 mm)	82 Lbs (37 kg)

* Dimensions and weight are per battery and are for reference only. Exact size may vary. Refer to the tables on page 3 for mounting compatibility. These batteries are 12 V each and series connected for 24 V system use.

NOTE: When wired in series for 24 V output, these batteries are to be of identical voltage, appearance, model number, and approximately the same date of manufacture.

General Battery Specifications

Nominal Voltage Rating	12 Volts per battery
Discharge Rating	20 Hour Rate
Typical Charge/Discharge Cycles	100 to 150
Preferred Charge Temperature Range	60° F to 90° F (15.6°C to 32.2° C)

Battery Compatibility for Fire Alarm Control Panel Mounting

NOTE: Refer to individual fire alarm control panel product data sheets for additional battery application information

Battery Model	Capacity	Simplex Control Panel Model Series (see legend and notes below)									
		4003EC	4004R	4005	4006 & 4008	4009 (all models)	4010	4010ES	4100ES/ 4100U	4100 & 4120 (2, 4 or 6-Unit)	4020 (2, 4 or 6-Unit)
2081-9272	6.2 Ah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2081-9274	10 Ah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2081-9288	12.7 Ah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2081-9275	18 Ah	**Ext**	Note 3	✓	**Ext**	**Ext**	Note 2	✓	✓	✓	✓
2081-9287	25 Ah	**Ext**	Note 3	**Ext**	**Ext**	**NA**	✓	✓	✓	✓	**Ext**
2081-9271 rectangular	33 Ah	**Ext**	Note 3	**Ext**	**NA**	**NA**	Note 3	✓	✓	**Ext**	Note 4
2081-9276 "square"	33 Ah	**Ext**	Note 3	**Ext**	**NA**	**NA**	Note 3	✓	✓	✓	**Ext**
2081-9296	50 Ah	**NA**	Note 3	**NA**	**NA**	**NA**	Note 3	Note 6	**2 or 3 bay**	**Ext**	**Ext**
2081-9279	110 Ah	Requires external battery cabinet, compatible with 4100ES, 4010ES, 4100, and 4120 Series only									

✓ **=** Can be placed in the respective equipment cabinet

Ext = External battery cabinet is required, refer to selection chart on page 4

NA = Not applicable/not compatible

NOTES:

1. These batteries meet the requirements of UL, ULC, and Factory Mutual for use with respective equipment battery chargers listed above. Contact your local Simplex product supplier for proper battery selection per system requirements.
2. 4010 Cabinets will accommodate 2081-9275, 18 Ah batteries, but will not allow bottom entry conduit.
3. Use 4081 series companion cabinet and charger, refer to page 4.
4. 4020 Cabinets will accommodate 2081-9271, 33 Ah batteries, but will not allow bottom entry conduit.
5. Some control panel models are listed for battery replacement reference only.
6. For 2 bay international applications only, 50 Ah batteries will fit in the cabinet.

External Battery Cabinet Compatibility Reference

Battery Cabinets without Chargers (connects to charger in panel)

Cabinet	Panel Compatibility	Battery					
		2081-9275 18 Ah*	2081-9287 25 Ah	2081-9271 Rectangular 33 Ah	2081-9276 Square 33 Ah	2081-9296 50 Ah	2081-9279 110 Ah
2081-9280	4100ES, 4010ES, 4100U, and 4100+	**NA**	**NA**	**NA**	**NA**	**NA**	✓
2081-9281 2081-9282	multiple	✓	✓	✓	✓	✓	**NA**
4009-9801	multiple	✓	✓**	**NA**	**NA**	**NA**	**NA**
4009-9802	multiple	✓	**NA**	✓	**NA**	**NA**	**NA**

Battery Cabinets with Chargers

Cabinet	Panel Compatibility	2081-9275 18 Ah*	2081-9287 25 Ah	2081-9271 Rectangular 33 Ah	2081-9276 Square 33 Ah	2081-9296 50 Ah	2081-9279 110 Ah
4081-9301 4081-9302	4004R and 4010	✓	✓	✓	✓	✓	**NA**
4081-9306 4081-9308	4100ES, 4010ES, and 4100U	**NA**	**NA**	**NA**	**NA**	✓	✓

* Batteries smaller than those listed are normally mounted in the product cabinet

** 25 Ah capacity was effective as of 7/2005.

✓ = Can be placed in the respective equipment cabinet

NA = Not applicable/not compatible

External Battery Cabinet Specification Reference

Battery Cabinets Without Chargers; Shallow Design with Front Door

Model	Color	Listings	Description		Dimensions
2081-9281	Beige	UL and FM	2-Unit, 4100 style cabinet **without** charger; with locking solid door and battery shelf, primarily for use with 50 Ah batteries		25-3/4" W x 20-3/4" H x 6-3/4" D (654 mm x 527 mm x 171 mm)
2081-9282	Red				
4003-9860	Beige	Multiple	Intended for use with 4003EC systems, for up to 33 Ah batteries (refer to 4003EC data sheet S4003-0002)		9-1/2" H x 24" W x 9" D (241 mm x 610 mm x 229 mm)
4009-9801*	Beige	UL and FM	For up to 25 Ah batteries*	External battery cabinet **without** charger, with locking solid door and battery harness; for close-nippled mounting to fire alarm control panel cabinet	16-1/4" W x 13-1/2" H x 5-3/4" D (413 mm x 343 mm x 146 mm)*
4009-9802	Beige	UL	For up to 33 Ah batteries		25-3/4" W x 20-3/4" H x 4-1/8" D (654 mm x 527 mm x 105 mm)

* Depth increased for 25 Ah batteries effective 7/2005.

Chargers for use with 4010 Fire Alarm Control Panels and 4004R Suppression Release Systems

(refer to data sheet S4081-0001)

Model	Color	Input Voltage	Description	Dimensions
4081-9301	Beige	120 VAC	Battery cabinet **with** charger for the 4010 and 4004R fire alarm control panel; **for up to 50 Ah batteries**; with front door *Listings include: UL, ULC, FM, CSFM, and MEA (NYC), see data sheet for details*	22-1/2" W x16-3/4" H x 8-3/8" D (572 mm x 425 mm x 213 mm)
4081-9302	Red			

Battery Cabinet Without Charger for 110 Ah Batteries; for use with compatible panel mounted chargers

(refer to data sheet S2081-0012)

Model & Listings	Color	Cabinet Description	Compatible Chargers	Charger Description	Dimensions
2081-9280 *Listings include: UL and CSFM*	Red	Battery cabinet for 2081-9279, 110 Ah batteries; includes 80 A battery fuse, terminals and battery connection cables; see data sheet for details	4010-9xxx Series	4010ES Main System Supply (MSS)	26-1/2" W x 12" H x 12" D (673 mm x 305 mm x 305 mm)
			4100-9xxx Series	4100ES/4100U System Power Supplies (SPS)	
			4100-5111 4100-5112 4100-5113	4100ES/4100U Additional SPS	
			4100-5125 4100-5126 4100-5127	4100ES/4100U Remote Power Supply (RPS)	
			4100-5120 4100-5121 4100-5122	4100ES/4100U TrueAlert Addressable Power Supply (TPS)	
			4100-0104 4100-0114 4100-0124	4100 Legacy power supplies	

4100ES/4010ES/4100U Compatible Battery Cabinet With Charger for 110 Ah Batteries (for ULC listed systems and for other applications unable to use panel mounted power supply charger; *refer to data sheet S4081-0002*)

Model	Color	Input Voltage	Description	Dimensions
4081-9306	Red	120 VAC	Battery cabinet with charger for up to 110 Ah batteries; **NOTE:** Required for ULC listed charging of 110 Ah batteries*; Listings include: UL, ULC, FM, CSFM, and MEA (NYC), see data sheet for details*	27-7/8" W x 13-1/2" H x 14-5/8" D (708 mm x 343 mm x 371 mm)
4081-9308	Red	220/230/240 VAC, multi-tapped		
4100-9837	Green LED Power-on Indicator Kit, **required for ULC listing,** mounts above access panel using knockout provided			

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UL Listed

7744/7788

AES CORPORATION | IntelliNet For Alarm Monitoring

NEW!

RF Subscriber Unit

UL Fire, AA Burglary and NFPA-72 Compliant

UL Listed

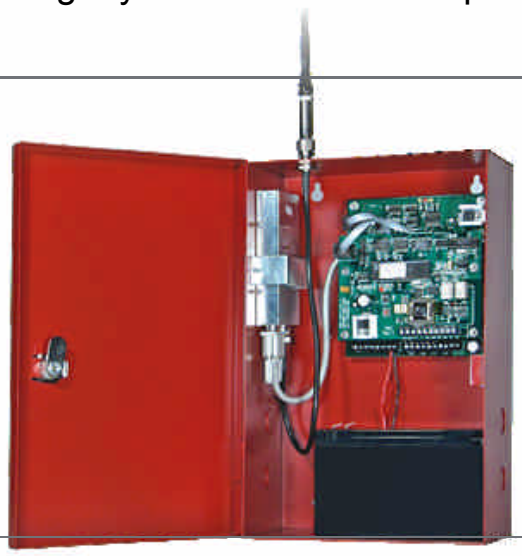
UL Listed Central Station

Remote Station

864 Ed. 9, 827, 1610, 365, 681

CSFM

NFPA RF Section 8.6.3.5



- **Options for Full Data for Fire and Burglary**
- **Available in 7744 & 7788 Zone Configurations**
- **Built-in Power Supply and Battery Charger**
- **Local Annunciation Options on Board**

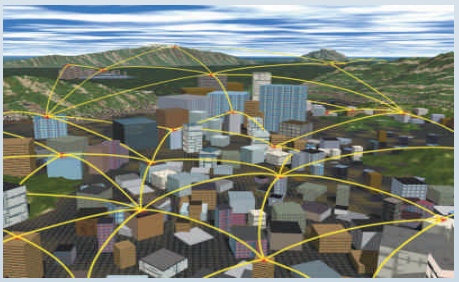
Advanced Wireless Alarm Monitoring

The 7744/7788 smart subscriber unit links an alarm panel to an alarm monitoring central station. This 2-way transceiver and repeater in one is housed in a full size locking steel cabinet for superior performance. The 7744/7788 supports a wide range of inputs such as NO/NC/EOL and direct voltage. It automatically senses wire and antenna cuts, and monitors battery and AC power status. Advanced status reporting, self-diagnostics and a built-in power supply make the 7744/7788 the first choice for all wireless alarm communication needs.

Full Data for Fire and Burglary

Use with the optional Firetap for full fire data or the IntelliTap for full fire and burglary data.

Available Configurations	Available Options
7744 – 4 reversing polarity inputs plus 4 programmable EOL inputs	FireTap 7770
7788 – Programmable EOL inputs with 8 zones	IntelliTap 7067
	NEMA 4 Enclosure
	High Gain Antenna
	Additional Back Up Battery
	Available in Burglary Beige or Fire Red



Wireless mesh networking is an innovative technology adopted by many industries with applications that need to communicate data over a large geographic area with a high level of reliability at a low total cost of ownership.

The advanced design and 2-way communications capability provides easy installation, expansion, and management when compared to alternative communication methods, both wired and wireless.

RF Subscriber Unit

Technical Specifications

Radio
Standard CSAA frequency ranges: 450-470 MHz and 130-174 MHz, VHF and UHF. Others available

Standard Output Power
2 watts (requires FCC license)

Power Input
16.5 VAC, 40VA UL listed
Class II transformer required

Voltage
12 VDC nominal

Current
175mA standby; 800mA transmit

Alarm Signal Inputs
- 4 individually programmable Zones: NO/NC/EOL, trouble restore
- RS-232
- Reversing voltage (7744 only) 12 or 24 VDC

Operating Temperature Range
0° to 50°C, 32° to 122°F

Storage Temperature Range
-10° to 60°C, 14° to 140°F

Relative Humidity Range
0-85% RHC non-condensing

Back up Battery
12V, 7 AH

Low Battery Reporting
22.5-minute test cycle

AC Status
Reports to central station after approximately 60 minutes without AC power, reports power restored after approximately 60 minutes of restored power. programmable from 60 to 180 minutes

Antenna Cut (local reporting)

Form 'C' Contact 1 AMP

Size
13.25"H x 8.5"W x 4.3"D
34cm x 21.5cm x 11cm

Weight
6.4 lbs, 2.9 Kilograms (excluding battery)

Colors
Available in standard Burglary Beige or Fire Red
Please specify when ordering

Available Options
- 7788 RF subscriber unit with 8 EOL inputs
- 7744 RF subscriber unit with 4 EOL inputs and 4 reverse polarity inputs
- 7770 - FireTap
- 7067 - IntelliTap
- NEMA 4 Enclosure

Please specify when ordering

Available configurations

- 7788, 8 EOL inputs
- 7744, 4 EOL inputs w/4 reverse polarity inputs

AES-IntelliNet™ is the industry leader in delivering high quality wireless mesh networks to the fire and security industry in commercial, corporate, government, and educational applications with its broad line of products and advanced network management tools. Users of AES-IntelliNet networks have gained significant revenue, communications, and cost advantages while meeting the high standards of reliability required for the fire and security industry. AES-IntelliNet alarm monitoring systems are deployed at hundreds of thousands of locations in over 130 countries.

AES CORPORATION | IntelliNet For Alarm Monitoring

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7744/7788/02/08

KNOX®
Serving Fire Departments Since 1975

Knox-Box® 3200 Series
HINGED DOOR MODEL

High Security Industrial/Government Key Box

Recessed Mount with Face Flange

Surface Mount

The number one high-security KNOX-BOX® is used for most commercial applications including businesses, schools, government and public buildings, community associations and apartment complexes. The 3200 Series KNOX-BOX holds keys, access cards and other small items necessary for emergency access.

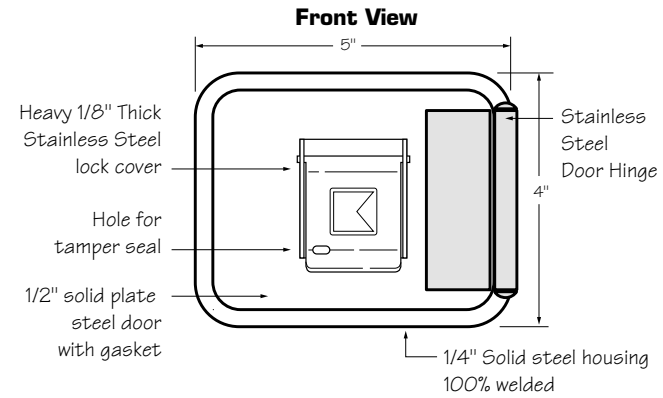
The hinged-door 3200 Series KNOX-BOX is more convenient than the lift-off door version because it allows single-handed operation and opened or closed, it's all one unit.

Features and Benefits

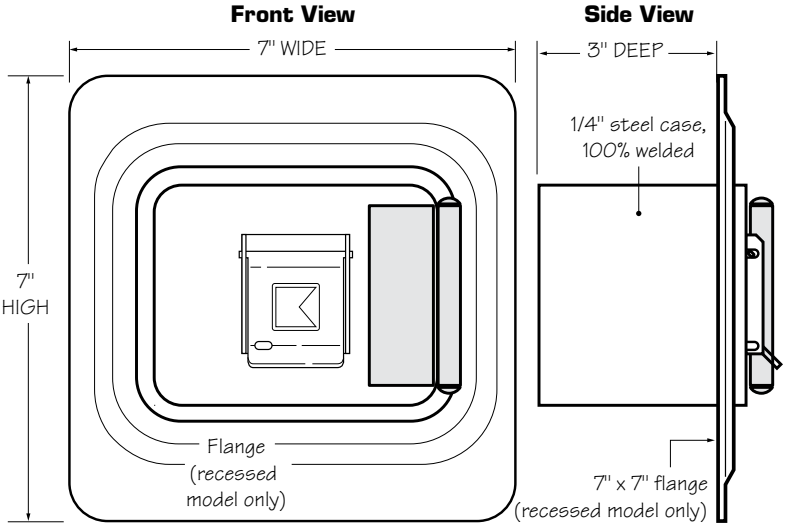
- Holds up to 10 keys or 1 access card in interior compartment
- Ensures high security. Box and lock are UL® Listed
- Includes a Knox-Coat® proprietary finishing process that protects Knox products up to four times better than standard powder coat
- Resists moist conditions with a weather resistant door gasket
- Hinged door allows single-handed operation
- Colors: Black, Dark Bronze or Aluminum
  Weight: Surface mount - 8 lbs.
  Recessed mount - 9 lbs.

Options

- Alarm tamper switches (UL Listed)
- Additional rust and corrosion protection (Aluminization)
- Recessed Mounting Kit (RMK) for recessed models only
- Inside switch for use on electrical doors, gates and other electrical equipment



3200 Surface Mount



3200 Recessed Mount

Ordering Specifications

To insure procurement and delivery of the 3200 Series KNOX-BOX, it is suggested that the following specification paragraph be used:

KNOX-BOX surface/recessed mount with hinged door, with/without UL Listed tamper switches. 1/4" plate steel housing, 1/2" thick steel door with interior gasket seal and stainless steel door hinge. Box and lock UL Listed. Lock has 1/8" thick stainless steel dust cover with tamper seal mounting capability.

Exterior Dimensions:	Surface mount body- 4"H x 5"W x 3 1/4"D Recessed mount flange- 7"H x 7"W
Lock:	UL Listed. Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.
Finish:	Knox-Coat® proprietary finishing process
Colors:	Black, Dark Bronze or Aluminum
P/N:	3200 Series KNOX-BOX (mfr's cat. ID)
Mfr's Name:	**KNOX COMPANY**

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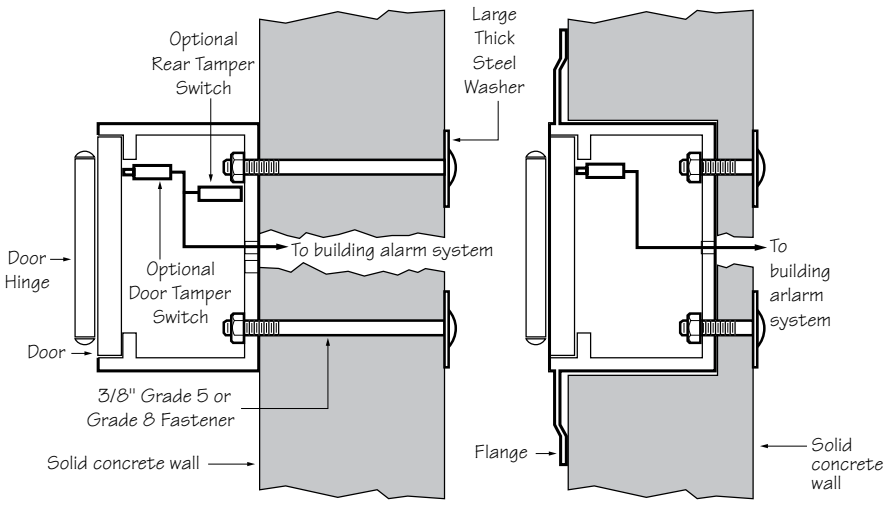
KNOX®
Serving Fire Departments Since 1975

Knox-Box® 3200 Series
HINGED DOOR MODEL - MOUNTING DIAGRAM

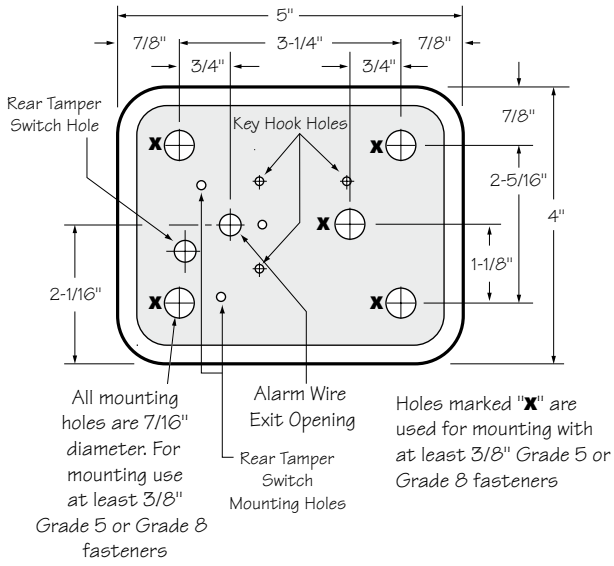
Suggested minimum mounting height
6 feet above ground



3200 Series Hinged Door Surface Mount

3200 Series Hinged Door Recess Mount

Inside View



Attention: KNOX-BOX® is a very strong device that MUST be mounted properly to ensure maximum security and resist physical attack.

Knox® Rapid Entry System
The Knox Company manufacturers a complete line of high security products including Knox-Box key boxes, key vaults, cabinets, key switches, padlocks, locking FDC caps, plugs and electronic master key security systems. For more information or technical assistance, please call Customer Service at 1-800-552-5669.

Recessed Mounting Kit

The 3200 Recessed Mounting Kit (RMK) is used for recessed models only. It contains a shell housing and mounting hardware to be cast-in-place in new concrete or masonry construction. After construction is completed, the KNOX-BOX mounts inside the RMK. The RMK may only be used in new concrete or masonry construction.

Installation In Cast Concrete

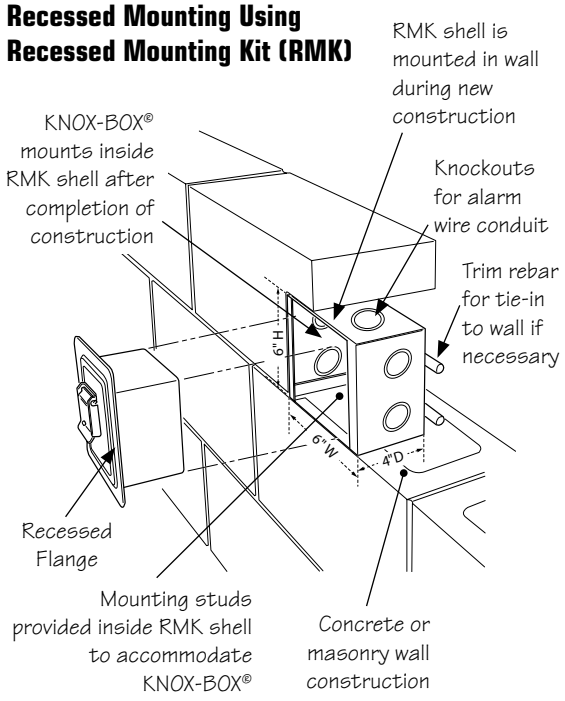
The optional Recessed Mounting Kit is for use in new concrete or masonry construction only. The kit includes a shell housing and mounting hardware to be cast-in-place. The KNOX-BOX is mounted into the shell housing after construction is completed.

Dimensions

Rough-in Dimensions: 6-1/2"H x 6-1/2"W x 5"D

IMPORTANT: Care should be taken to insure that the front of the RMK shell housing, including the cover plate and screw heads, is flush with the finish wall. The RMK must be plumbed to insure vertical alignment of the vault.

Recessed Mounting Using Recessed Mounting Kit (RMK)



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INSERT 3

FIRE ALARM INITIATING/ADDRESSABLE DEVICES, DOOR HOLDERS & ACCESSORIES

Multi-Application Peripherals

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

IDNet or MAPNET II Communicating Devices
Addressable Manual Stations

Features

Individually addressable manual fire alarm stations with:

- Power and data supplied via IDNet or MAPNET II addressable communications using a single wire pair
- Operation that complies with ADA requirements
- The NO GRIP Single Action Station and Retrofit Kit are available with a more easily operated pull lever for applications where anticipated users may find the standard station lever difficult to activate
- Pull lever that protrudes when alarmed
- Break-rod supplied (use is optional)
- Models are available with single or double action (breakglass or push) operation
- UL listed to Standard 38

Compatible with the following Simplex® control panels:

- Model Series 4100ES, 4100U, 4010ES, 4010, 4008, 4020, 4100, and 4120 fire alarm control panels equipped with either IDNet or MAPNET II communications
- Model Series 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Compact construction:

- Electronics module enclosure minimizes dust infiltration
- Allows mounting in standard electrical boxes
- Screw terminals for wiring connections

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

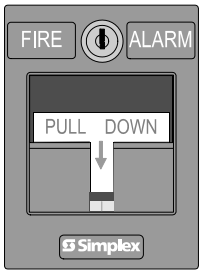
Multiple mounting options:

- 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

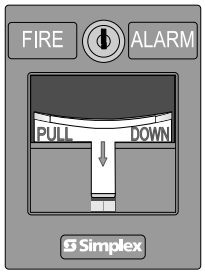
Description

The Simplex addressable manual station combines the familiar Simplex manual station housing with a compact communication module that is easily installed to satisfy demanding applications. Its integral individual addressable module (IAM) constantly monitors status and communicates changes to the connected control panel via IDNet or MAPNET II communications wiring.

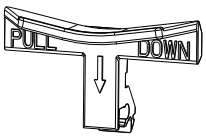
* Refer to page 2 for specific model listings. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7150-0026:224 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. 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.



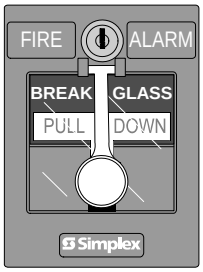
4099-9001
Single action



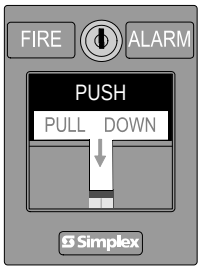
4099-9020
NO GRIP
Single action



4099-9805
NO GRIP
Retrofit kit



4099-9002
Breakglass



4099-9003
Push

With 2099-9828
Institutional
Cover kit

Operation

Activation of the 4099-9001 single action manual station requires a firm downward pull to activate the alarm switch. Completing the action breaks an internal plastic break-rod (visible below the pull lever, use is optional). The use of a break-rod can be a deterrent to vandalism without interfering with the minimum pull requirements needed for easy activation. The pull lever latches into the alarm position and remains extended out of the housing to provide a visible indication.

Single Action NO GRIP Station 4099-9020. For applications such as California Building Code, Title 24, which requires "Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist" the model 4099-9020 station provides a more easily operated pull lever compared to standard stations. Retrofit of existing stations is available using the 4099-9805 Retrofit kit.

Double Action Stations (Breakglass) require the operator to strike the front mounted hammer to break the glass and expose the recessed pull lever. The pull lever then operates as a single action station.

Double Action Stations (Push Type) require that a spring loaded interference plate (marked PUSH) be pushed back to access the pull lever of the single action station.

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.

Addressable Manual Station Product Selection

Addressable Manual Stations, Red Housing with White Letters and White Pull Lever

Model	Description	Housing	Pull Lever	Listings
4099-9001	Single action, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM, MEA
4099-9001CB	Single action, Bilingual English and French	FEU FIRE	TIREZ PULL	ULC, FM
4099-9001CF	Single action, French	ALARME FEU	ABAISSEZ	
4099-9002	Double action, Breakglass operation, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM, MEA
4099-9003	Double action, Push operation, English			
4099-9020	Single action NO GRIP operation, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM

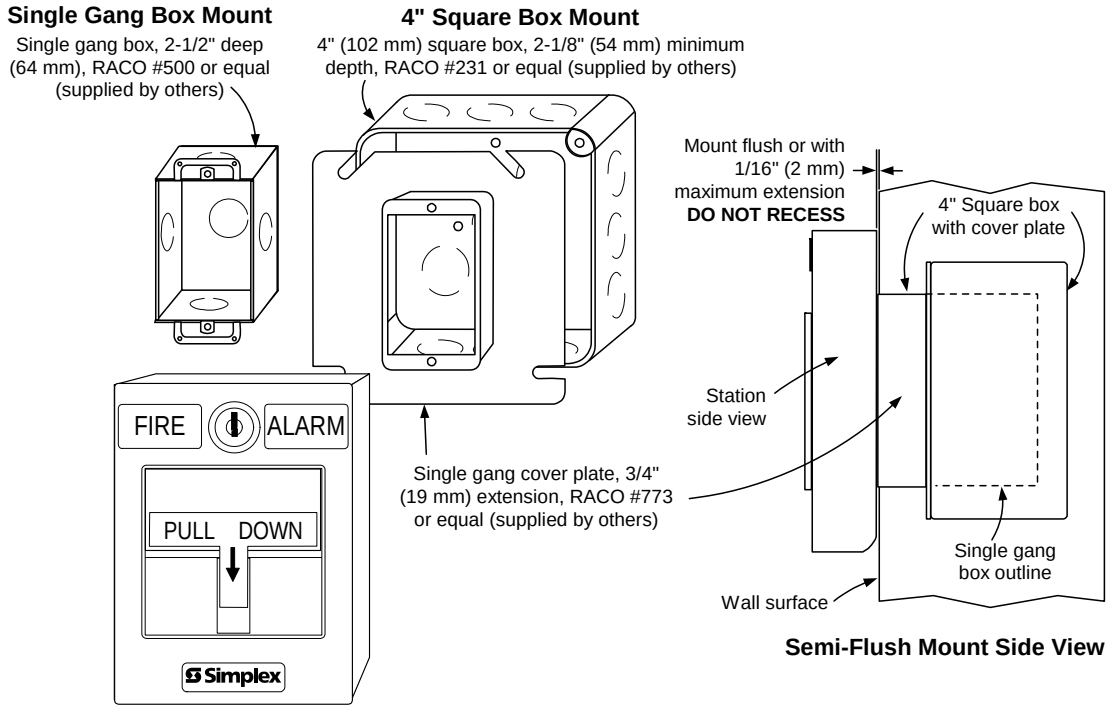
Accessories

Model	Description	
2975-9178	Surface mount steel box, red	Refer to page 3 for dimensions
2975-9022	Cast aluminum surface mount box, red	
2099-9813	Semi-flush trim plate for double gang switch box, red	Typically for retrofit, refer to page 4
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	Flush mount adapter kit, beige	
2099-9803	Replacement breakglass	
2099-9804	Replacement break-rod	
2099-9828	Institutional cover kit for field installation on 4099-9001	
4099-9805	Retrofit Kit for field conversion of a single action station to a NO GRIP station; refer to Installation Instructions 579-1007 for details	

Specifications (refer to Installation Instructions 574-332 for additional information)

Power and Communications	IDNet or MAPNET II communications, 1 address per station
Address Means	DIP switch, 8 position
Wire Connections	Screw terminal for in/out wiring, for 18 to 14 AWG wire
UL Listed Temperature Range	32° to 120° F (0° to 49° C) intended for indoor operation
Humidity Range	Up to 93% RH at 100° F (38° F)
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” H x 3-3/4” W x 1” D (127 mm x 95 mm x 25 mm)

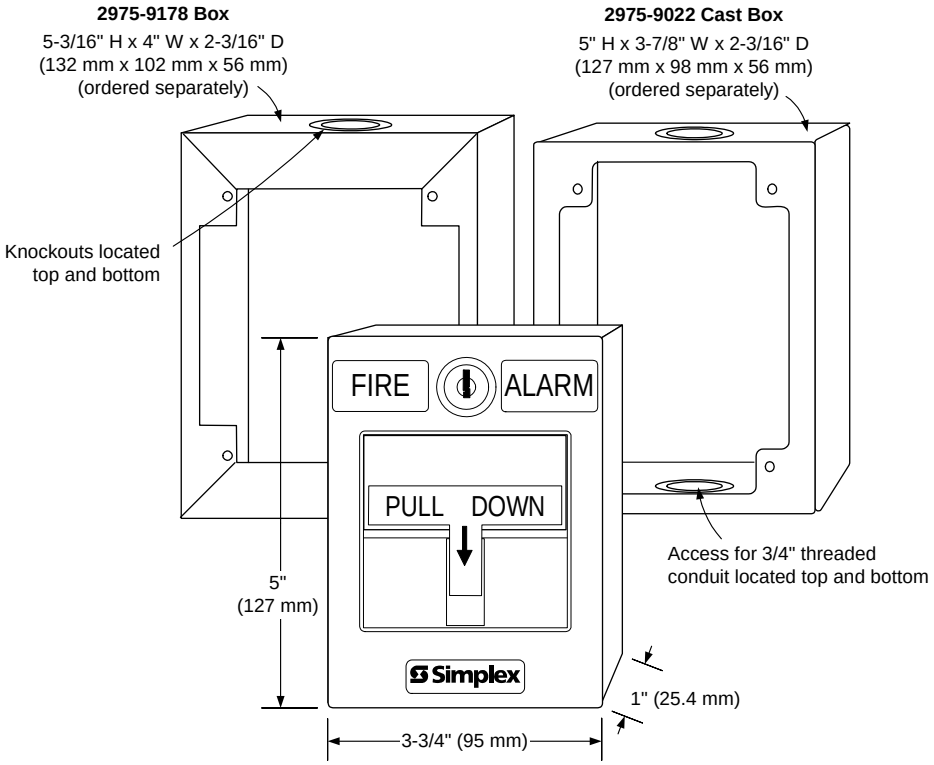
Addressable Manual Station Semi-Flush Mounting



Addressable Manual Stations Surface Mounting

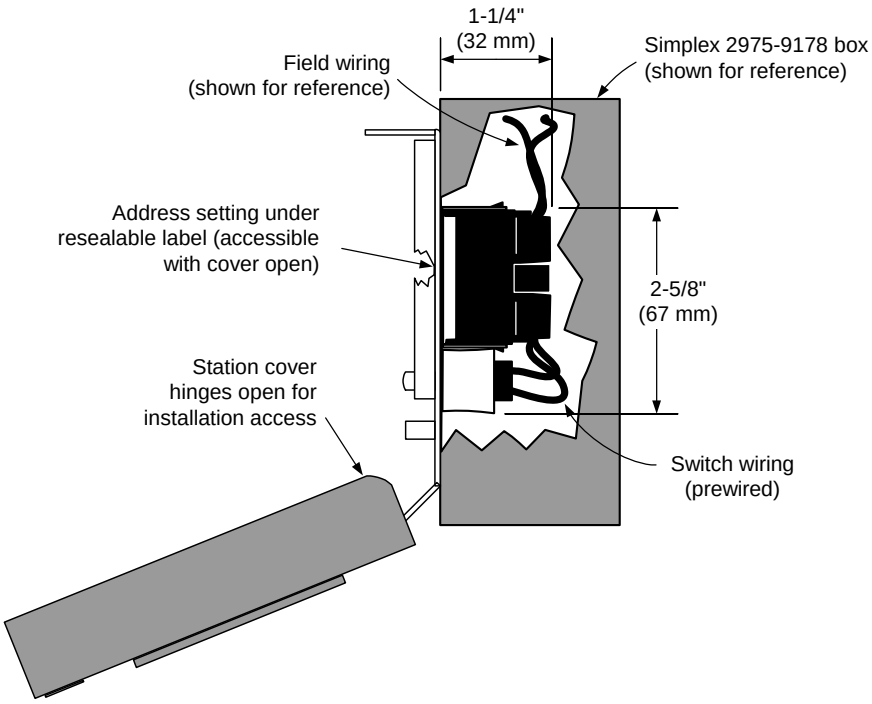
Preferred Mounting. For surface mounting of these addressable manual stations, the preferred electrical boxes are shown in the illustration to the right.

Additional Mounting Reference. Refer to page 4 for Wiremold box mounting compatibility.



4099 Series Addressable Manual Station

Surface Mount Side View with Internal Detail



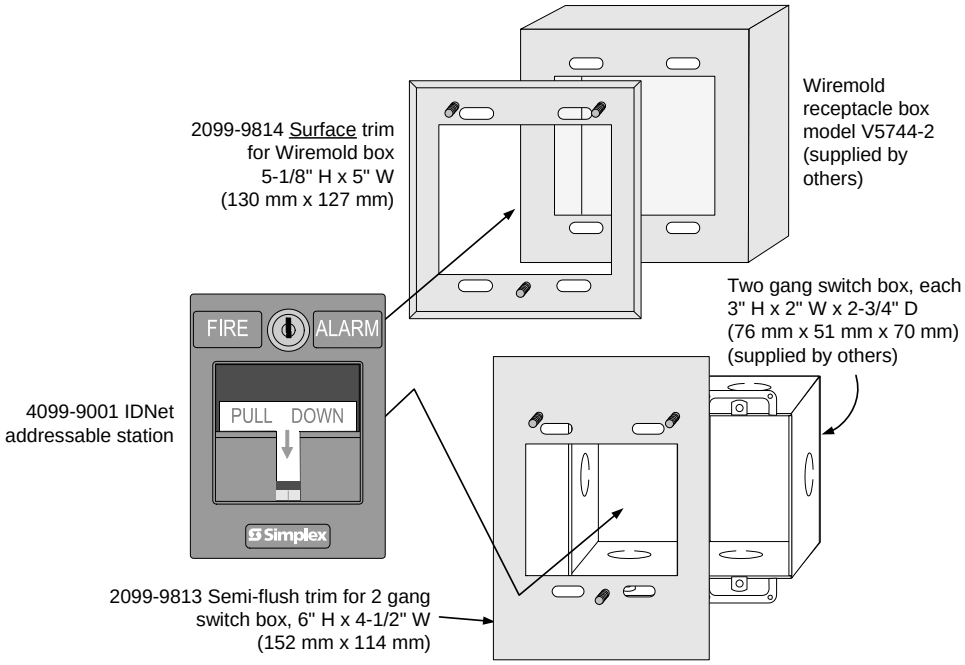
Application Reference

Refer to NFPA 72, the *National Fire Alarm and Signaling Code*, and all applicable local codes for complete requirements for manual stations. The following summarizes the basic requirements.

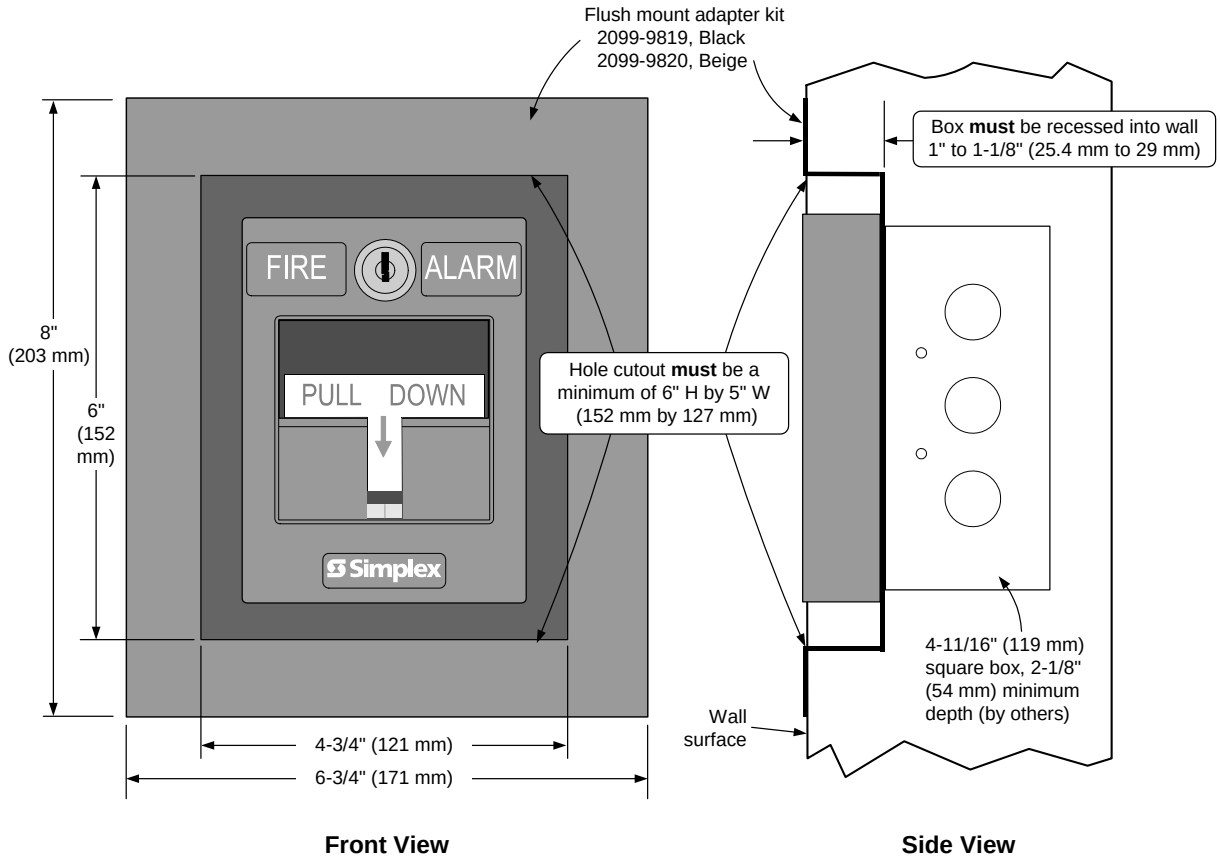
1. Stations shall be located in the normal path of exit and distributed in the protected area such that they are unobstructed and readily accessible.
2. Mounting shall be with the operable part not less than 3-1/2 ft (1.1 m) and not more than 4-1/2 ft (1.37 m) above floor level.
3. At least one station shall be provided on each floor. Additional stations shall be provided to obtain a travel distance not more than 200 ft (61 m) to the nearest station from any point in the building.
4. When manual station coverage appears limited in any way, additional stations should be installed.

Addressable Manual Station, Additional Mounting Information

For retrofit and new installations, additional compatible mounting boxes and the required adapter plates are shown in the illustration to the right.



Addressable Manual Station, Flush Mounting Information



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Simplex®

True*Alarm* Analog Sensing

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

TrueAlarm Analog Sensors – Photoelectric, Ionization, and Heat; Standard Bases and Accessories

Features

TrueAlarm analog sensing provides:

- Digital transmission of analog sensor values via IDNet or MAPNET II two-wire communications

For use with the following Simplex® products:

- 4100ES, 4100U, 4010ES, and 4010 Series control panels; and 4008 Series control panels with reduced feature set (refer to data sheet S4008-0001 for details)
- 4020, 4100, and 4120 Series control panels, Universal Transponders and 2120 TrueAlarm CDTs equipped for MAPNET II operation

Fire alarm control panel provides:

- Peak value logging allowing accurate analysis of each sensor for individual sensitivity selection
- Sensitivity monitoring satisfying NFPA 72 sensitivity testing requirements; automatic individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation, multi-stage alarm operation, and display of sensitivity directly in percent per foot
- Ability to display and print detailed sensor information in plain English language

Photoelectric smoke sensors provide:

- Seven levels of sensitivity from 0.2% to 3.7%

Heat sensors provide:

- Fixed temperature sensing
- Rate-of-rise temperature sensing
- Utility temperature sensing

Ionization smoke sensors provide:

- Three levels of sensitivity; 0.5%, 0.9%, and 1.3%

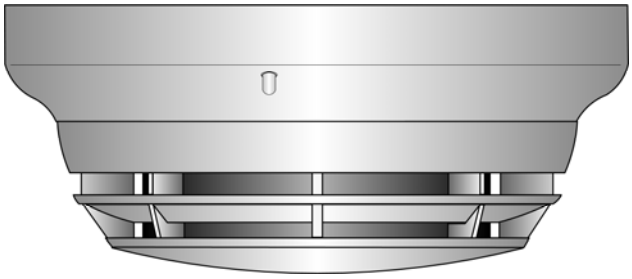
General features:

- UL listed to Standard 268
- Louvered smoke sensor design enhances smoke capture by directing flow to chamber; entrance areas are minimally visible when ceiling mounted
- Designed for EMI compatibility
- Magnetic test feature is provided
- Optional accessories include remote LED alarm indicator and output relays

Additional base reference:

- For isolator bases, refer to data sheet S4098-0025
- For sounder bases, refer to data sheet S4098-0028
- For photo/heat sensors, refer to data sheet S4098-0024 (single address) and S4098-0033 (dual address)

* 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 Listings 7272-0026:218, 7271-0026:231, 7270-0026:216, and 7300-0026:217 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. 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.



4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

Description

Digital Communication of Analog Sensing. TrueAlarm analog sensors provide an analog measurement digitally communicated to the host control panel using Simplex addressable communications. At the control panel, the data is analyzed and an average value is determined and stored. An alarm or other abnormal condition is determined by comparing the sensor's present value against its average value and time.

Intelligent Data Evaluation. Monitoring each sensor's average value provides a continuously shifting reference point. This software filtering process compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. With this filtering, there is a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity, either up or down.

Control Panel Selection. Peak activity per sensor is stored to assist in evaluating specific locations. The alarm set point for each TrueAlarm sensor is determined at the host control panel, selectable as more or less sensitive as the individual application requires.

Timed/Multi-Stage Selection. Sensor alarm set points can be programmed for timed automatic sensitivity selection (such as more sensitive at night, less sensitive during day). Control panel programming can also provide multi-stage operation per sensor. For example, a 0.2% level may cause a warning to prompt investigation while a 2.5% level may initiate an alarm.

Sensor Alarm and Trouble LED Indication. Each sensor base's LED pulses to indicate communications with the panel. If the control panel determines a sensor is in alarm, or is dirty or has some other type of trouble, the details are annunciated at the control panel and that sensor base's LED will be turned on steadily. During a system alarm, the control panel will control the LEDs such that an LED indicating a trouble will return to pulsing to help identify the alarmed sensors.

True*Alarm* Sensor Bases and Accessories

Sensor Base Features

Base mounted address selection:

- Address remains with its programmed location
- Accessible from front (DIP switch under sensor)

General features:

- Automatic identification provides default sensitivity when substituting sensor types
- Integral red LED for power-on (pulsing), or alarm or trouble (steady on)
- Locking anti-tamper design mounts on standard outlet box
- Magnetically operated functional test

Sensor Bases

4098-9792, Standard sensor base

4098-9789, Sensor base with wired connections for:

- 2098-9808 Remote LED alarm indicator **or** 4098-9822 relay (unsupervised)

4098-9791, Sensor base with supervised relay driver output (not compatible with 2120 CDT)**:**

- Relay operation is programmable and can be manually operated from control panel
- Use with remote mount 2098-9737 relay
- Also includes wired connections for remote LED alarm indicator **or** 4098-9822 relay

Sensor Base Options

2098-9737, Remote or local mount supervised relay:

- DPDT contacts for resistive/suppressed loads, power limited rating of 3 A @ 28 VDC; non-power limited rating of 3 A @ 120 VAC (requires external 24 VDC coil power)

4098-9822, LED Annunciation Relay:

- Activates when base LED is on steady, indicating local alarm or trouble
- DPDT contacts for resistive/suppressed loads, power limited rating of 2 A @ 28 VDC; non-power limited rating of 1/2 A @ 120 VAC, (requires external 24 VDC coil power)

4098-9832, Adapter plate:

- Required for surface or semi-flush mounting to 4” square electrical box and for surface mounting to 4” octagonal box
- Can be used for cosmetic retrofitting to existing 6-3/8” diameter base product

2098-9808, Remote red LED Alarm Indicator:

- Mounts on single gang box (shown in illustration to right)

Description

TrueAlarm sensor bases contain integral addressable electronics that constantly monitor the status of the detachable photoelectric, ionization, or heat sensors. Each sensor’s output is digitized and transmitted to the system fire alarm control panel every four seconds.

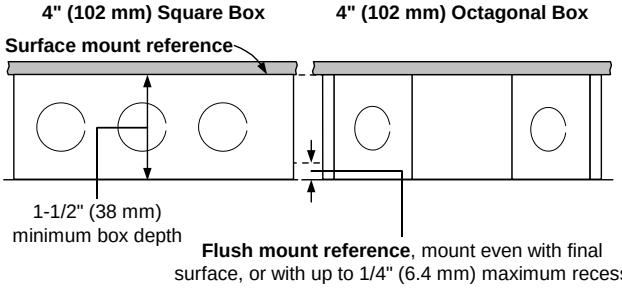
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. Although the control panel will indicate an incorrect sensor type, the heat sensor will operate at a default sensitivity providing heat detection for building protection at that location.

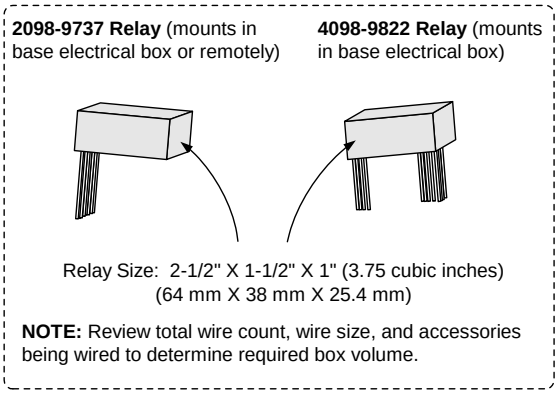
Mounting Reference

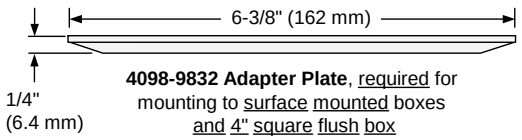
Electrical Box Requirements: (boxes are by others)

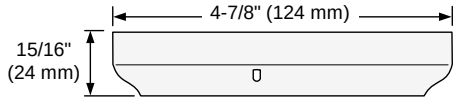
Without relay: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

With relay : 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring









TrueAlarm Bases
4098-9789, -9791, & -9792

True*Alarm* Sensors

Features

Sealed against rear air flow entry

Interchangeable mounting

EMI/RFI shielded electronics

Heat sensors:

- Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
- Rated spacing distance between sensors:

Fixed Temp. Setting	UL & ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F (57.2° C)	60 ft x 60 ft (18.3 m)	20 ft x 20 ft (6.1 m) for fixed temperature only; **RTI = Quick**
155° F (68° C)	40 ft x 40 ft (12.2 m)	50 ft x 50 ft (15.2 m) for fixed temperature with either rate-of-rise selection; **RTI = Ultra Fast**

Smoke Sensors:

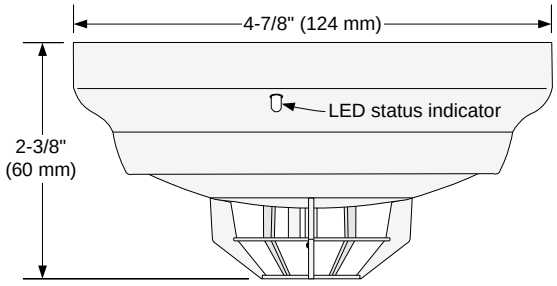
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

4098-9733 Heat Sensor

TrueAlarm heat sensors are self-restoring and provide rate compensated, fixed temperature sensing, selectable with or without rate-of-rise temperature sensing. Due to its small thermal mass, the sensor accurately and quickly measures the local temperature for analysis at the fire alarm control panel.

Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

TrueAlarm heat sensors can be programmed as a utility device to monitor for temperature extremes in the range from 32° F to 155° F (0° C to 68° C). This feature can provide freeze warnings or alert to HVAC system problems. *Refer to specific panels for availability.*



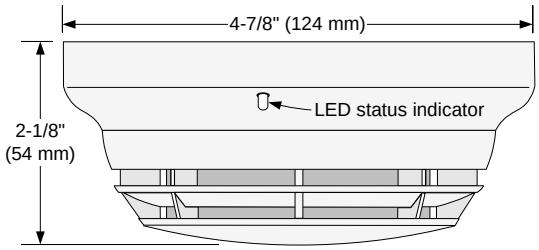
4098-9733 Heat Sensor with Base

<u>WARNING</u>: In most fires, hazardous levels of smoke and toxic gas can build up before a heat detection device would initiate an alarm. In cases where Life Safety is a factor, the use of smoke detection is highly recommended.

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing. Seven levels of sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

The sensor head design provides 360° smoke entry for optimum response to smoke from any direction. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.

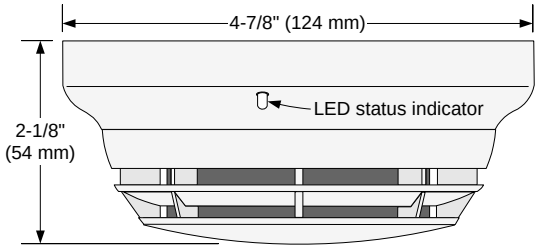


4098-9714 Photoelectric Sensor with Base

4098-9717 Ionization Sensor

TrueAlarm Ionization sensors use a single radioactive source with an outer sampling ionization chamber and an inner reference ionization chamber to provide stable operation under fluctuations in environmental conditions such as temperature and humidity. Smoke and invisible combustion gases can freely penetrate the outer chamber. With both chambers ionized by a small radioactive source [Am 241 (Americium)], a very small current flows in the circuit. The presence of particles of combustion will cause a change in the voltage ratio between chambers. This difference is measured by the electronics in the sensor base and digitally transmitted back to the control panel for processing.

Three levels of sensitivity are available for each ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.



4098-9717 Ionization Sensor with Base

Application Reference

Sensor 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 and Signaling Code*. On smooth ceilings, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide. For detailed application information, refer to *4098 Detectors, Sensors, and Bases Application Manual* (574-709).

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sensor Bases

(Refer to Application Manual 574-709 and Installation Instructions 574-707 for additional information)

Model	Description	Compatibility	Mounting Requirements
4098-9792	Standard Sensor Base, no options	Sensors 4098-9714, -9733, & -9717	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" min. depth
4098-9789	Sensor Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9808 remote LED alarm indicator **or** 4098-9822 relay	4" octagonal or 4" square box **Note:** Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference.
4098-9791**	Sensor Base with connections for **Supervised** Remote Relay **and** connections for Remote Alarm Indicator **or** Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9737 remote relay (supervised) 2098-9808 remote alarm indicator **or** 4098-9822 relay (unsupervised)	** **NOTE:** 4098-9791 is NOT compatible with the 2120 CDT

TrueAlarm Sensors

Model	Description	Compatibility	Mounting Requirements
4098-9714	Photoelectric Smoke Sensor	Bases 4098-9792, 4098-9789, and 4098-9791	Refer to base requirements
4098-9717	Ionization Smoke Sensor		
4098-9733	Heat Sensor		

TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4" octagonal or 4" square box, 1-1/2" minimum depth **Base Mounting** requires 4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
2098-9808	Remote Red LED Alarm Indicator on single gang stainless steel plate	Bases 4098-9789 and 4098-9791	Single gang box, 1-1/2" minimum depth
4098-9822	Relay, tracks base LED status (unsupervised, mounts only in base electrical box)		4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, -9789, & -9791	**Required** for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

Specifications

General Operating Specifications		
Communications and Sensor Supervisory Power		MAPNET II or IDNet, auto-select, 24-40 VDC w/data, 400 μA typical, 1 address per base
Communications Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator Current		1 mA typical, no impact to alarm current
Remote LED Alarm Indicator and Relay Connections		Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Temperature Range		32° to 100° F (0° to 38° C)
Operating Temperature Range	with 4098-9717 or 4098 -9733	32° to 122° F (0° to 50° C)
	with 4098-9714	15° to 122° F (-9° to 50° C)
Humidity Range		10 to 95% RH
Smoke Sensor Ambient Ratings	4098-9714, Photoelectric Sensor	Air velocity = 0-4000 ft/min (0-1220 m/min)
	4098-9717, Ionization Sensor	Air velocity = 0-200 ft/min (0-61 m/min); Altitude is up to 8000 ft (2.4 km)
Housing Color		Frost White
4098-9791 Base With Supervised Remote Relay 2098-9737 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		270 μA, from 24 VDC supply
Alarm Current with 2098-9737 Relay		28 mA, from 24 VDC supply
4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789 and 4098-9791 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		Supplied from communications
Alarm Current		13 mA from separate 24 VDC supply

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True*Alarm* Analog Sensing

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

TrueAlarm Analog Sensors – Photoelectric, Ionization, and Heat; Standard Bases and Accessories

Features

TrueAlarm analog sensing provides:

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For use with the following Simplex® products:

- 4100ES, 4100U, 4010ES, and 4010 Series control panels; and 4008 Series control panels with reduced feature set (refer to data sheet S4008-0001 for details)
- 4020, 4100, and 4120 Series control panels, Universal Transponders and 2120 TrueAlarm CDTs equipped for MAPNET II operation

Fire alarm control panel provides:

- Peak value logging allowing accurate analysis of each sensor for individual sensitivity selection
- Sensitivity monitoring satisfying NFPA 72 sensitivity testing requirements; automatic individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation, multi-stage alarm operation, and display of sensitivity directly in percent per foot
- Ability to display and print detailed sensor information in plain English language

Photoelectric smoke sensors provide:

- Seven levels of sensitivity from 0.2% to 3.7%

Heat sensors provide:

- Fixed temperature sensing
- Rate-of-rise temperature sensing
- Utility temperature sensing

Ionization smoke sensors provide:

- Three levels of sensitivity; 0.5%, 0.9%, and 1.3%

General features:

- UL listed to Standard 268
- Louvered smoke sensor design enhances smoke capture by directing flow to chamber; entrance areas are minimally visible when ceiling mounted
- Designed for EMI compatibility
- Magnetic test feature is provided
- Optional accessories include remote LED alarm indicator and output relays

Additional base reference:

- For isolator bases, refer to data sheet S4098-0025
- For sounder bases, refer to data sheet S4098-0028
- For photo/heat sensors, refer to data sheet S4098-0024 (single address) and S4098-0033 (dual address)

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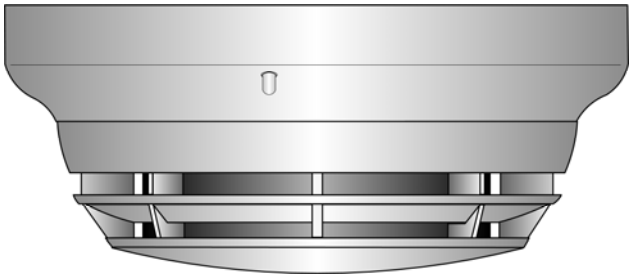


4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

Description

Digital Communication of Analog Sensing. TrueAlarm analog sensors provide an analog measurement digitally communicated to the host control panel using Simplex addressable communications. At the control panel, the data is analyzed and an average value is determined and stored. An alarm or other abnormal condition is determined by comparing the sensor's present value against its average value and time.

Intelligent Data Evaluation. Monitoring each sensor's average value provides a continuously shifting reference point. This software filtering process compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. With this filtering, there is a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity, either up or down.

Control Panel Selection. Peak activity per sensor is stored to assist in evaluating specific locations. The alarm set point for each TrueAlarm sensor is determined at the host control panel, selectable as more or less sensitive as the individual application requires.

Timed/Multi-Stage Selection. Sensor alarm set points can be programmed for timed automatic sensitivity selection (such as more sensitive at night, less sensitive during day). Control panel programming can also provide multi-stage operation per sensor. For example, a 0.2% level may cause a warning to prompt investigation while a 2.5% level may initiate an alarm.

Sensor Alarm and Trouble LED Indication. Each sensor base's LED pulses to indicate communications with the panel. If the control panel determines a sensor is in alarm, or is dirty or has some other type of trouble, the details are annunciated at the control panel and that sensor base's LED will be turned on steadily. During a system alarm, the control panel will control the LEDs such that an LED indicating a trouble will return to pulsing to help identify the alarmed sensors.

True*Alarm* Sensor Bases and Accessories

Sensor Base Features

Base mounted address selection:

- Address remains with its programmed location
- Accessible from front (DIP switch under sensor)

General features:

- Automatic identification provides default sensitivity when substituting sensor types
- Integral red LED for power-on (pulsing), or alarm or trouble (steady on)
- Locking anti-tamper design mounts on standard outlet box
- Magnetically operated functional test

Sensor Bases

4098-9792, Standard sensor base

4098-9789, Sensor base with wired connections for:

- 2098-9808 Remote LED alarm indicator **or** 4098-9822 relay (unsupervised)

4098-9791, Sensor base with supervised relay driver output (not compatible with 2120 CDT)**:**

- Relay operation is programmable and can be manually operated from control panel
- Use with remote mount 2098-9737 relay
- Also includes wired connections for remote LED alarm indicator **or** 4098-9822 relay

Sensor Base Options

2098-9737, Remote or local mount supervised relay:

- DPDT contacts for resistive/suppressed loads, power limited rating of 3 A @ 28 VDC; non-power limited rating of 3 A @ 120 VAC (requires external 24 VDC coil power)

4098-9822, LED Annunciation Relay:

- Activates when base LED is on steady, indicating local alarm or trouble
- DPDT contacts for resistive/suppressed loads, power limited rating of 2 A @ 28 VDC; non-power limited rating of 1/2 A @ 120 VAC, (requires external 24 VDC coil power)

4098-9832, Adapter plate:

- Required for surface or semi-flush mounting to 4” square electrical box and for surface mounting to 4” octagonal box
- Can be used for cosmetic retrofitting to existing 6-3/8” diameter base product

2098-9808, Remote red LED Alarm Indicator:

- Mounts on single gang box (shown in illustration to right)

Description

TrueAlarm sensor bases contain integral addressable electronics that constantly monitor the status of the detachable photoelectric, ionization, or heat sensors. Each sensor’s output is digitized and transmitted to the system fire alarm control panel every four seconds.

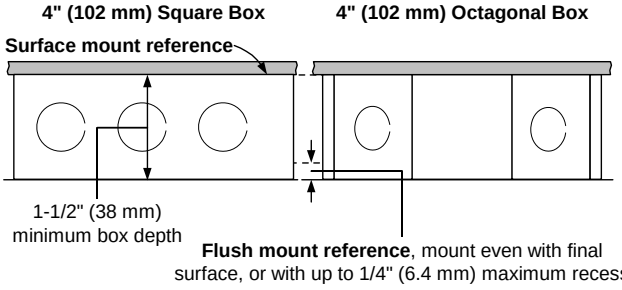
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. Although the control panel will indicate an incorrect sensor type, the heat sensor will operate at a default sensitivity providing heat detection for building protection at that location.

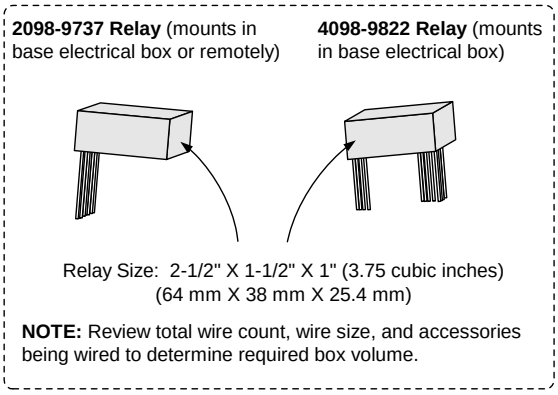
Mounting Reference

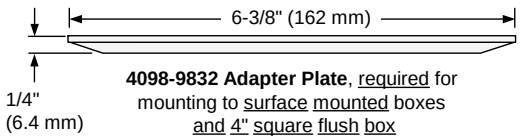
Electrical Box Requirements: (boxes are by others)

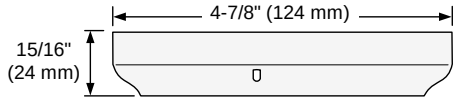
Without relay: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

With relay : 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring









TrueAlarm Bases
4098-9789, -9791, & -9792

True*Alarm* Sensors

Features

Sealed against rear air flow entry

Interchangeable mounting

EMI/RFI shielded electronics

Heat sensors:

- Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
- Rated spacing distance between sensors:

Fixed Temp. Setting	UL & ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F (57.2° C)	60 ft x 60 ft (18.3 m)	20 ft x 20 ft (6.1 m) for fixed temperature only; **RTI = Quick**
155° F (68° C)	40 ft x 40 ft (12.2 m)	50 ft x 50 ft (15.2 m) for fixed temperature with either rate-of-rise selection; **RTI = Ultra Fast**

Smoke Sensors:

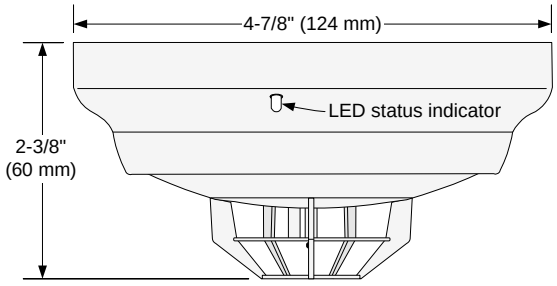
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

4098-9733 Heat Sensor

TrueAlarm heat sensors are self-restoring and provide rate compensated, fixed temperature sensing, selectable with or without rate-of-rise temperature sensing. Due to its small thermal mass, the sensor accurately and quickly measures the local temperature for analysis at the fire alarm control panel.

Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

TrueAlarm heat sensors can be programmed as a utility device to monitor for temperature extremes in the range from 32° F to 155° F (0° C to 68° C). This feature can provide freeze warnings or alert to HVAC system problems. *Refer to specific panels for availability.*



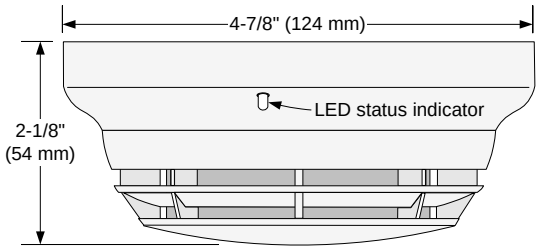
4098-9733 Heat Sensor with Base

<u>WARNING</u>: In most fires, hazardous levels of smoke and toxic gas can build up before a heat detection device would initiate an alarm. In cases where Life Safety is a factor, the use of smoke detection is highly recommended.

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing. Seven levels of sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

The sensor head design provides 360° smoke entry for optimum response to smoke from any direction. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.

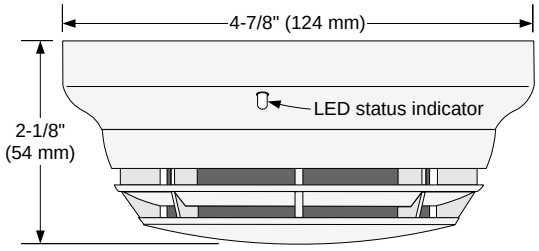


4098-9714 Photoelectric Sensor with Base

4098-9717 Ionization Sensor

TrueAlarm Ionization sensors use a single radioactive source with an outer sampling ionization chamber and an inner reference ionization chamber to provide stable operation under fluctuations in environmental conditions such as temperature and humidity. Smoke and invisible combustion gases can freely penetrate the outer chamber. With both chambers ionized by a small radioactive source [Am 241 (Americium)], a very small current flows in the circuit. The presence of particles of combustion will cause a change in the voltage ratio between chambers. This difference is measured by the electronics in the sensor base and digitally transmitted back to the control panel for processing.

Three levels of sensitivity are available for each ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.



4098-9717 Ionization Sensor with Base

Application Reference

Sensor 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 and Signaling Code*. On smooth ceilings, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide. For detailed application information, refer to *4098 Detectors, Sensors, and Bases Application Manual* (574-709).

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sensor Bases

(Refer to Application Manual 574-709 and Installation Instructions 574-707 for additional information)

Model	Description	Compatibility	Mounting Requirements
4098-9792	Standard Sensor Base, no options	Sensors 4098-9714, -9733, & -9717	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" min. depth
4098-9789	Sensor Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9808 remote LED alarm indicator **or** 4098-9822 relay	4" octagonal or 4" square box **Note:** Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference.
4098-9791**	Sensor Base with connections for **Supervised** Remote Relay **and** connections for Remote Alarm Indicator **or** Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9737 remote relay (supervised) 2098-9808 remote alarm indicator **or** 4098-9822 relay (unsupervised)	** **NOTE:** 4098-9791 is NOT compatible with the 2120 CDT

TrueAlarm Sensors

Model	Description	Compatibility	Mounting Requirements
4098-9714	Photoelectric Smoke Sensor	Bases 4098-9792, 4098-9789, and 4098-9791	Refer to base requirements
4098-9717	Ionization Smoke Sensor		
4098-9733	Heat Sensor		

TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4" octagonal or 4" square box, 1-1/2" minimum depth **Base Mounting** requires 4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
2098-9808	Remote Red LED Alarm Indicator on single gang stainless steel plate	Bases 4098-9789 and 4098-9791	Single gang box, 1-1/2" minimum depth
4098-9822	Relay, tracks base LED status (unsupervised, mounts only in base electrical box)		4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, -9789, & -9791	**Required** for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

Specifications

General Operating Specifications		
Communications and Sensor Supervisory Power		MAPNET II or IDNet, auto-select, 24-40 VDC w/data, 400 μA typical, 1 address per base
Communications Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator Current		1 mA typical, no impact to alarm current
Remote LED Alarm Indicator and Relay Connections		Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Temperature Range		32° to 100° F (0° to 38° C)
Operating Temperature Range	with 4098-9717 or 4098 -9733	32° to 122° F (0° to 50° C)
	with 4098-9714	15° to 122° F (-9° to 50° C)
Humidity Range		10 to 95% RH
Smoke Sensor Ambient Ratings	4098-9714, Photoelectric Sensor	Air velocity = 0-4000 ft/min (0-1220 m/min)
	4098-9717, Ionization Sensor	Air velocity = 0-200 ft/min (0-61 m/min); Altitude is up to 8000 ft (2.4 km)
Housing Color		Frost White
4098-9791 Base With Supervised Remote Relay 2098-9737 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		270 μA, from 24 VDC supply
Alarm Current with 2098-9737 Relay		28 mA, from 24 VDC supply
4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789 and 4098-9791 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		Supplied from communications
Alarm Current		13 mA from separate 24 VDC supply

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UL, ULC, CSFM Listed;
*FM Approved**

TrueAlarm® CO Sensor Bases for Smoke, Heat, and Photo/Heat Sensors using IDNet™ Communications

Features

TrueAlarm® addressable CO sensor bases contain a carbon monoxide (CO) sensing module providing both CO toxic gas monitoring *and* enhanced fire detection:

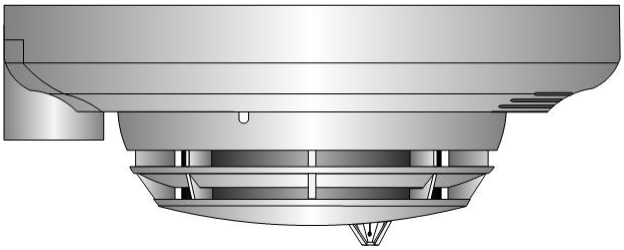
- For use with 4100ES, 4100U or 4010ES fire alarm control panels (4100U requires software revision 12.05 or higher)
- CO sensor bases support (and require) a TrueAlarm photoelectric, photo/heat, heat, or ionization sensor (ordered separately)
- Model 4098-9797 provides standard features, model 4098-9798 also provides a piezoelectric sounder
- CO sensor bases are multi-point devices, consume only one IDNet address, and receive both communications and sensor power from the IDNet channel (the sounder base requires separate 24 VDC system power or NAC connection)
- Listed to UL 268, *Smoke Detectors for Fire Alarm Signaling Systems* and UL 2075, *Gas and Vapor Detectors and Sensors*; allowing systems to be listed to Standard 2034, *Single and Multiple Station Carbon Monoxide Alarms*
- Listed by ULC to CSA 6.19-01 *Residential Carbon Monoxide Alarming Devices*
- Three types of CO influenced operation are available; UL 2034 CO alarm detection; UL 2075 CO (OSHA) level monitoring for ventilation control; and multi-criteria fire sensor analysis with algorithms that combines optical and CO gas monitoring information

Operation of a CO sensor base with a photoelectric or a photo/heat sensor allows:

- Independent sensor operation ***or*** selectable multi-sensor modes of *False Alarm Reduction **or** Faster Detection*
- **False Alarm Reduction** analyzes CO and photoelectric sensor information together to provide a sophisticated rejection of non-fire conditions normally troublesome as false alarms (steam, dust, aerosols, etc.)
- **Faster Detection** (increased sensitivity) algorithm analyzes CO and photoelectric sensor information to allow the presence of CO to implement an increased photoelectric sensitivity for high value locations (museums, electrical equipment rooms, etc.)

Sounder base operation details:

- When connected to a panel NAC through the 4905-9835 Temporal Code Module, the sounder base can provide temporal code 3 (TC3) for fire, or temporal code 4 (TC4) for toxic carbon monoxide alarms
- 4905-9835 module may also be used to code other (non-fire) dedicated carbon monoxide notification appliances (refer to data sheet S4905-0006)
- Sounder can be manually activated from the panel
- Sounder operation is also listed to UL 464 as an audible notification appliance



TrueAlarm CO Sensor Base with Sounder
(shown with 4098-9754 Photo/Heat Sensor)

Features *(Continued)*

4100ES/4100U/4010ES Control Panel operation summary:

- CO sensor data is stored and analyzed at the panel; a new CO Service Report provides easy information access (see sample on page 3)
- Five (5) year end of life status indication with CO sensor expiration notices occurring within 12 months and within 6 months, allowing service replacement planning
- Analog sensor information is digitally transmitted to the host control panel via IDNet communications for processing to evaluate and track status
- Carbon monoxide concentration in ppm (parts per million) is available for viewing from the panel user interface
- For OSHA compliant CO gas sensing, CO condition level may be programmed by concentration (must be above 30 ppm)

General features:

- Operation of a CO sensor base with ionization or heat sensor provides dual independent sensor operation
- New CO test mode allows functional testing of each sensor technology including the CO sensor
- Optional accessories include remote alarm LED, alarm relay, and mounting adapter plate
- Designed for EMI compatibility
- Provides magnetic test

CO sensor element is easily replaced when end of service life is reached:

- Access to CO sensor replacement cartridge (CORC, 4098-9746) requires removal of interchangeable sensor head providing tamper monitoring (sensor removal causes a trouble condition)

* 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 7300-0026:330 for allowable values and/or conditions concerning material presented in this document. Listings and approvals under Simplex Time Recorder Co. are the property of SimplexGrinnell LP, Westminster.

CO Sensor Base Description

Carbon monoxide (CO) is an odorless, colorless, tasteless gas produced by the incomplete combustion of heating fuels such as wood, coal, heating oil, and natural gas. CO is also a byproduct of many materials experiencing unintentional fire or even incipient fire conditions. Monitoring of CO levels can warn of physically harmful concentrations, however, sensing of CO levels below the harmful level can also provide improved understanding of incipient fire conditions when evaluated in combination with photoelectric fire sensor information from the same location.

Simplex® CO sensor bases combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network.

CO sensor operation is similar to other TrueAlarm sensors (photoelectric, heat, or ionization). It provides current analog values, average analog value, "No Answer" troubles, "Wrong Device" troubles, over threshold, concentration in ppm, and monitors for the presence of the CO sensor. Base mounted address selection allows the address to remain with its location when the sensor is removed for service or type change. Address access is from the front, under the removable sensor. An integral red LED indicates power-on by pulsing, or alarm or trouble when steady on, and also provides test mode status (see page 3). Detailed status is available at the fire alarm control panel.

CO Sensing, Detailed Operation

Toxic Gas Sensing, UL 2034/UL 2075. For CO toxic gas detection, the bases provide toxic gas sensing to the UL 2034 and UL 2075 standards. Toxic gas sensing may be selected at the same time as any of the combined CO photo fire detection modes are selected.

Toxic Gas Sensing, OSHA Compliant. For OSHA compliant gas sensing, the desired threshold level (above 30 ppm) is selected at the control panel as required for the application, typically for ventilation control. Refer to page 3 for additional OSHA CO monitoring information.

Enhanced Fire Sensing. Each sensor provides an analog measurement digitally communicated to the control panel for analysis. At the panel, these analog values are used separately, or combined, to evaluate for conditions indicative of fire, incipient fire, excessive heat, and freeze warning. For fire, the addition of a CO sensor provides two new selectable modes of operation: *Nuisance Alarm Reduction Mode* and *Faster Fire Detection*. These two modes were developed using the results of extensive testing of actual fires performed under a wide variety of conditions. (Refer to page 4 for additional operation mode options.)

Nuisance Alarm Reduction Mode allows the host control panel to combine photoelectric sensor input and CO sensor level input to reduce false alarms caused by non-fire conditions. Non-fire conditions can be steam from bathroom showers, particles from dusty environments, aerosols from personal care products, tobacco smoke, cooking smoke, or other similar conditions.

CO Sensing, Detailed Operation *(Continued)*

Nuisance Alarm Reduction Details. For applications of anticipated nuisance alarm conditions, photoelectric sensitivity is normally selected for 3.7%/ft smoke obscuration. However, the addition of CO sensing allows the host control panel to apply software verification similar to the timed alarm verification feature often used with conventional smoke detection.

Faster Fire Detection. For applications where faster response to incipient or slow building fires is desired and environment appropriate, the Faster Fire Detection mode correlates the outputs of the CO sensor and the photoelectric sensor to provide increased sensitivity. This mode provides earlier detection compared to a standard sensitive photoelectric sensor setting, and also provides more false alarm reduction compared to using a sensitive setting in an area not normally considered appropriate.

Faster Fire Detection Details. TrueAlarm photoelectric sensors can be selected to be as sensitive as 0.2%/ft obscuration for applications evaluated as appropriate to that level. However, if the environment is not suitable for that sensitivity level, the Faster Fire Detection mode allows the photoelectric sensor to be selected as a "standard" 2.5%/ft obscuration, but with the presence of a significant level of CO, the combination of CO and photo sensing input can allow an equivalent sensitivity approaching 0.5%/ft obscuration. The host control panel tracks two photoelectric sensitivities, the one selected for photoelectric operation only (typically 2.5%), and the CO correlation sensitivity that it adjusts depending on the amount of CO present.

Control Panel Operations

Smoke sensor features include: sensitivity monitoring satisfying NFPA 72® sensitivity testing requirements, automatic individual sensor calibration checking to verify sensor integrity, automatic environmental compensation, available multi-stage alarm operation, display of sensitivity directly in percent per foot, monitoring of peak activity per sensor, alarm set point, and time of day or multi-stage alarm selection.

Sensor Alarm and Trouble LED Indications. The sensor base LED pulses to indicate communications with the panel. If a sensor is in alarm, or has a trouble condition, the status is annunciated at the control panel and that base LED will turn on steady. During a system alarm, the panel will control LEDs such that a trouble indication will return to pulsing to help identify the sensors in alarm.

Reported CO Sensor troubles are: Disabled, Almost Expired 12 Months, Almost Expired 6 Months, Expired (End of Life), Short, and Sensor Missing/Failed.

Trouble Details. "Almost Expired" is similar to the "Almost Dirty" trouble for a photoelectric sensor. "Expired" trouble is similar to the "Dirty" trouble for a TrueAlarm photoelectric sensor. CO sensor technology does not support automatic sensitivity testing and drift compensation as is available with a photoelectric sensor. End of useful CO sensor life is based upon a set 5 year operational lifetime, tracked by date code built into the CO sensor module electronics. Although the CO sensor will continue to function after the 5 year expired trouble is indicated, replacement is required to ensure proper detection accuracy.

Control Panel Operations *(Continued)*

Panel Test Mode. To facilitate functional testing of the CO sensor, a new test mode is available in the host control panel. In this mode, the CO sensor, and installed heat or smoke sensor can be easily ***functionally*** tested.

Panel Test Mode Details. When in the CO test mode, the internal multiple sensor analysis algorithms are disabled allowing each sensor to be quickly tested either individually or simultaneously, depending on the test equipment used. CO testing can be performed using a Solo™ Model 332 aerosol dispenser (or equal). (Testing is available through your local authorized Simplex product supplier.) The base LED will display steady ON when individual sensors are activated during test. Refer to the Application Reference section for more information.

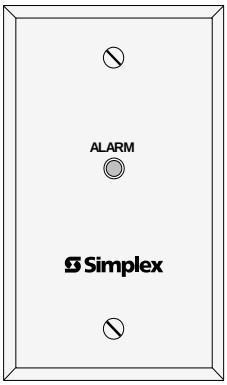
OSHA CO monitoring. For OSHA compliant gas sensing (i.e. parking garages and workplace spaces with combustion type equipment) control panel software supports the internal programming command "ANALOG COMPARE" to provide comparisons of CO points. For example, in a custom control equation to turn on a fan or vent. "If the CO toxic gas is 50 ppm (or is greater or less than X ppm)" then turn on control point. *The valid concentration range for the opcode is 30 to 563 ppm.*

Multi-Point Allocation. The host panel requires three (3) points per CO sensor base with the 4098-9754 multi-sensor, and two (2) points for the other sensors. Depending on CO sensor base and sensor choice, up to seven (7) points can be made public to a connected Simplex Fire Alarm Network. Each CO sensor base uses a single address with each of the individual points appearing as "sub-points" layered underneath (such as 1-1-0, 1-1-1, 1-1-2, ….1-1-6). (Additional multi-point allocation detail is described in reference data sheet S4090-0011.)

CO Sensor Base Power Requirements. Power for the standard CO sensor base is provided by IDNet communications. *No additional wiring is required for upgrading of existing installed TrueAlarm sensor bases.* CO sensor sounder bases do require system supplied separate 24 VDC (or NAC) wiring, the same as the standard sounder base.

Accessories

2098-9808, Remote red LED Alarm Indicator mounts on a single gang box to provide status indications where the sensor location may not be readily visible. (See illustration to right.)



4098-9822, LED Annunciation Relay activates when base LED is on steady, indicating a local alarm or trouble. Contacts are DPDT, rated 2 A @ 30 VDC; 1/2 A @ 120 VAC for transient suppressed loads (requires external 24 VDC coil power).

Application Reference

Determine sensor locations after careful consideration of the physical layout and contents of the area to be protected.

For fire alarm applications:

- Refer to NFPA 72, the *National Fire Alarm Code*®
- On smooth ceilings, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide.

For detailed application information:

- Refer to *4098 Detectors, Sensors, and Bases Application Manual*, Part Number 574-709.

For toxic gas sensor placement and mounting:

- Refer to NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units*
- Sensors may be either wall or ceiling mounted
- Per NFPA 720, Section 5.1 (2005 edition):
  5.1.1 A carbon monoxide alarm or detector shall be centrally located outside of each separate sleeping area in the immediate vicinity of the bedrooms.
  5.1.2 Each alarm or detector shall be located on the wall, ceiling, or other location as specified in the installation instructions that accompany the unit.

TrueAlarm CO Service Reports

TrueAlarm CO Service Reports (sample below) contain information on the CO sensors programmed in the panel displaying pertinent data such as current concentration value in ppm, End of Life date, and current state. This report allows determination of which sensors will require attention.

```
Service Port                                                          Page 1

REPORT 6 : TrueAlarm CO Report                  12:34:56am     WED     8-SEP-10

Channel 1 (M1)

Zone                                              Current    End of
Name      CUSTOM LABEL                             Value    Life Date  State
M1-1-2    Conference Room 17 CO Toxic Gas          457PPM   01-SEP-15  PRI
M1-2-2    Boiler Room CO Toxic Gas                   0PPM   01-SEP-15  NOR
TRUE ALARM CO REPORT COMPLETED
         Press RETURN for next Screen OR CTRL-X to abort
```

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm CO Sensor Base

Model	Description	
4098-9797	CO Base, Standard operation	Select TrueAlarm sensor from list below
4098-9798	CO Base with Sounder	

TrueAlarm Sensors, select one per CO Sensor Base

Model	Description	
4098-9714	Photoelectric Smoke Sensor	Refer to selection table below for available operation modes
4098-9754	Multi-Sensor Photoelectric and Heat Sensing	
4098-9733	Heat Sensor	
4098-9717	Ionization Smoke Sensor	

CO Base Replacement CO Cartridge and Accessories (ordered separately as required)

Model	Description		Mounting Requirements
4098-9746	CO Replacement Cartridge (CORC)		
Solo 332	Aerosol Dispenser, suitable for larger diameter detectors; can be used for CO or smoke testing		
Solo C3	CO Aerosol Canister (case of 12)		
4098-9832	Adapter Plate, **required** for surface mounted 4" electrical boxes		Refer to page 2, mounting reference
2098-9808	Choose **one** if required	Remote red LED Alarm Indicator on single gang stainless steel plate	Single gang box, 1-1/2" minimum depth
4098-9822		Relay, tracks base LED status (unsupervised, to be mounted only in base electrical box)	Mounts in base electrical box (requires 1-1/2" extension on 4" square or octagonal box)

CO Sensor Base Operation Options with Sensor Choice

Sensor Choice	Mode	Operational Mode Choices* (✓ = operation selected)								
		False Alarm Reduction	Faster Detection	TrueSense Photo/Heat	Photo Fire	Heat Fire**	Utility Temp.	Ion Fire	CO Toxic Gas†	CO Fire††
Photoelectric Smoke Sensor 4098-9714	1	✓	—	—	—	—	—	—	option	option
	2	—	✓	—	option	—	—	—	option	option
Photo/Heat Multi-Sensor 4098-9754	3	✓	—	—	—	option	option	—	option	option
	4	—	✓	—	option	option	option	—	option	option
	5		—	✓	option	option	option		option	option
Heat Sensor 4098-9733	6	—	—	—	—	✓	option	—	option	—
	7	—	—	—	—	option	✓	—	option	—
Ionization Smoke Sensor 4098-9717	8	—	—	—	—	—	—	✓	option	—

* **NOTE:** Duct detection modes are not applicable and are not available. Each CO base and sensor counts as multiple points against panel point capacity depending on the operations selected at the 4100ES/4100U/4010ES control panel, refer to data sheet S4090-0011 for additional multi-point allocation detail.

** Heat Fire Mode is 135° F or 155° F, fixed or rate-of-rise.

† CO Toxic Gas operation is selectable as: Supervisory (which is NOT recommended if communicated off-site), Priority 2 (preferred if communicated off-site), or Utility.

†† CO fire detection mode can be selected only when used with a photoelectric smoke detection sensor set for fire detection mode.

TrueAlarm Analog Sensor Features

Sealed against rear air flow entry

Electronics are EMI/RFI shielded

Heat sensing:

- Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
- Rated spacing distance between sensors:

Fixed Temp. Setting	UL& ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F (57.2° C)	60 ft x 60 ft (18.3 m)	20 ft x 20 ft (6.1 m) for fixed temperature only; **RTI = Quick**
155° F (68° C)	40 ft x 40 ft (12.2 m)	50 ft x 50 ft (15.2 m) for fixed temperature with either rate-of-rise selection; **RTI = Ultra Fast**

Smoke Sensors:

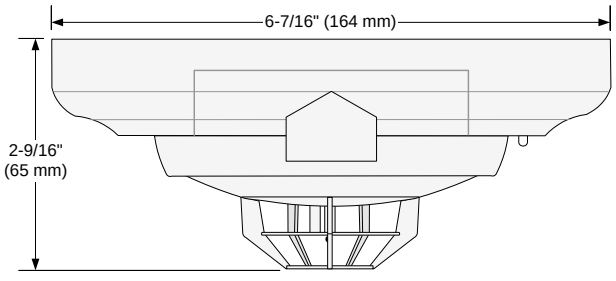
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

4098-9733 Heat Sensor

TrueAlarm heat sensors are self-restoring and provide rate compensated, fixed temperature sensing, selectable with or without rate-of-rise temperature sensing. Due to its small thermal mass, the sensor accurately and quickly measures the local temperature for analysis at the fire alarm control panel.

Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

TrueAlarm heat sensors can be programmed as a utility device to monitor for temperature extremes in the range from 32° F to 155° F (0° C to 68° C). This feature can provide freeze warnings or alert to HVAC system problems.



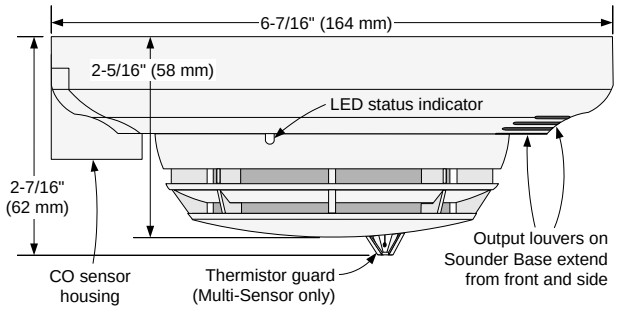
4098-9733 Heat Sensor with CO Sensor Base
(with CO Sensor Housing facing forward)

<u>WARNING</u>: In most fires, hazardous levels of smoke and toxic gas can build up before a heat detection device would initiate an alarm. In cases where Life Safety is a factor, the use of smoke detection is highly recommended.

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing. Seven levels of sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

The sensor head design provides 360° smoke entry for optimum smoke response. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.



Dimension and Feature Reference, Photoelectric, Ionization, and Multi-Sensor on CO Sensor Base

4098-9717 Ionization Sensor

TrueAlarm ionization sensors use a single radioactive source with an outer sampling ionization chamber and an inner reference ionization chamber to provide stable operation under fluctuations in environmental conditions such as temperature and humidity. Smoke and invisible combustion gases can freely penetrate the outer chamber. With both chambers ionized by a small radioactive source [Am 241 (Americium)], a very small current flows in the circuit. The presence of particles of combustion will cause a change in the voltage ratio between chambers. This difference is measured by the electronics in the sensor base and digitally transmitted back to the control panel for processing. Three levels of sensitivity are available for each ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.

4098-9754 Multi-Sensor

TrueAlarm multi-sensors combines the performances of TrueAlarm photoelectric smoke sensing with TrueAlarm thermal sensing to provide both features in a single assembly. Each sensing element provides data for evaluation at the fire alarm control panel where the following four independent detection modes are evaluated:

- Fixed temperature heat detection
- Rate-of-rise heat detection
- TrueAlarm photoelectric smoke detection
- And TrueSense® correlation detection

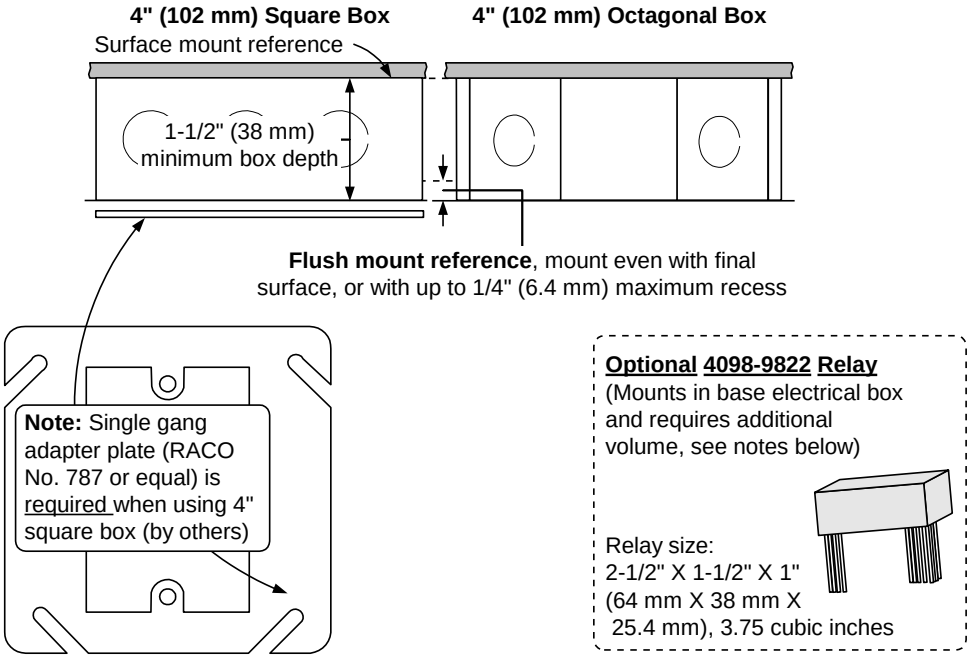
TrueSense analysis correlates both thermal activity *and* smoke activity at a single multi-sensor location using an extensively tested covariance relationship. As a result, TrueSense detection improves response to conditions indicative of faster acting, hot flaming fires when compared to the response of either photoelectric smoke activity or thermal activity alone.

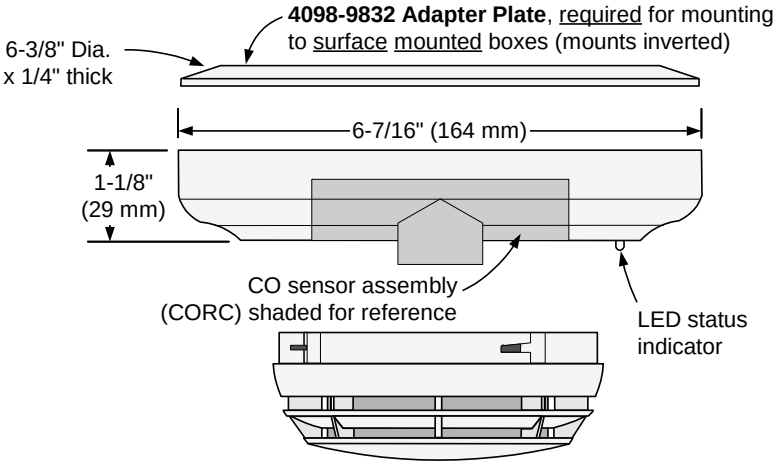
Installation Reference

Electrical Box Requirements: (boxes are by others)

Without relay: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

With relay : 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring





(Photoelectric sensor shown for reference)

NOTES:

1. Review actual wire size, wire count, box type, and whether 4098-9822 relay is used before determining box size.
2. Mounting to flush mounted box also fits single gang handy box, 2-1/8" (51 mm) deep if wiring allows. (Not applicable if 4098-9822 relay is used.)
3. For surface mounted boxes, use 4" square box with single gang adapter plate (RACO No. 787 or equal, by others) or 4" octagonal box, both require 4098-9832 Adapter Plate.
4. When 4098-9822 relay is used, mount relay in electrical box and use 1-1/2" extension ring (by others) on 4" square or octagonal box of 1-1/2" or 2-1/8" depth as required.
5. Refer to sensor base Installation Instructions 574-707 for additional information.
6. Refer to CORC Replacement Instructions 579-791 for CO cartridge installation and replacement.

Specifications

General Operating Specifications

IDNet Communications and Sensor Supervisory Power		24-40 VDC w/data, 400 μA typical, 1 address per base, supplied by control panel
Communications and Sounder Power Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator	Current	1 mA typical supplied from communications, no impact to alarm current
	LED Connections	Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Temperature Range		32° F to 100° F (0° C to 38° C)
Operating Temperature Range	with 4098-9733 or 4098-9717	32° F to 122° F (0° C to 50° C)
	with 4098-9714 or 4098-9754	15° F to 122° F (-9° C to 50° C)
Humidity Range		15 to 95% RH
CO Sensor Base Air Velocity Ratings per Sensor	Photoelectric Sensor 4098-9714 and Multi-Sensor 4098-9754	Air velocity = 0-1000 ft/min (0-305 m/min)
	Ionization Sensor 4098-9717	Air velocity = 0-200 ft/min (0-61 m/min); Altitude is up to 8000 ft (2.4 km)
Housing Color		Frost White

Sounder Operation

Sounder Voltage		18 to 32 VDC from steady external source or from NAC
Alarm Current (Sounder On)		17 mA @ 24 VDC, 24 mA maximum @ 32 VDC
Sounder Output		88 dBA minimum @ 10 ft (3 m) per UL Standard 464, *Audible Signaling Appliance*; UL Standard 268, *Smoke Detectors for Fire Protective Signaling Systems* and CSA 6.19-01
Sounder Power Supervision (Selectable)	Supervised	Select for continuous 24 VDC power, loss of power is communicated to panel
	Unsupervised	Select when connected to NAC for sounder power, NAC provides supervision
NAC Powered Operation		When in alarm, will sound when NAC is in alarm, allowing synchronized pattern (Temporal or March Time, etc.) controlled by the NAC control

Standards Reference for CO Monitoring

		Concentration	Alarm Window
Requirements Reference for UL 2034 and CSA 6.19-01	Response Time	70 ±5 ppm	60 to 240 minutes
		150 ±5 ppm	10 to 50 minutes
		400 ±10 ppm	4 to 15 minutes
	False Alarm Resistance	30 ±3 ppm	No Alarm for 30 days
		70 ±5 ppm	No Alarm for 60 minutes
UL 2075 Reference, Commercial OSHA Type Operation		For operations required at lower concentrations than those of UL 2034, such as start ventilation after 5 minutes at 25 to 35 ppm and to alarm at a reading higher than that range, but lower than UL 2034 allows	

4098-9822 Unsupervised Relay Option

Externally Supplied Relay Voltage	18-32 VDC, steady source recommended (wires to remote LED leads)
Alarm Current	13 mA from separate 24 VDC supply
Contact Ratings, DPDT contacts for resistive/suppressed loads	Power limited rating: 2 A @ 30 VDC
	Non-power limited rating: 1/2 A @ 120 VAC
Relay Operation	Tracks base LED status, relay is on with trouble or alarm at the base

Additional Information Reference

Product	Data Sheet
Temporal Code 4 Module	S4905-0006
Standard Bases	S4098-0019
Isolator Bases	S4098-0025
Standard Sounder Base	S4098-0028
TrueSense Multi-Sensor	S4098-9024
Dual Address Multi-Sensor	S4098-0033

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SimplexGrinnell LP Westminster • Westminster, MA • 01441-0001 • USA

S4098-0041-6

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GENTEX CORPORATION

Photoelectric Smoke Alarm with Visual Signaling Appliance

710/713CS/LS 7109/7139CS/ SERIES

Applications

The 710/713CS/LS and 7109/7139CS/LS photoelectric single/multiple station smoke alarms are designed to give reliable early warning of the presence of smoke where both audible and visual alarms are required. The series features a 90dBA solid state piezo signal and a 177 Candela strobe with “FIRE” lettering. The strobe is listed per UL 1971.

The smoke alarm operates on the light scattering principle, a superior method of detection in smoldering fires, utilizing a pulsing LED light source and a photodiode sensor in a fully screened sensing chamber.

Every 4 to 5 seconds the pulsing LED emits an infrared beam that by passes the photodiode under normal conditions. However, when smoke enters the sensing chamber, the infrared beam is deflected onto the sensor by the smoke particles. The LED pulse rate increases to 8 times the normal rate, and after the photodiode confirms that smoke is present for 2 consecutive pulses, it will produce the signal necessary to trip an alarm.

Upon activation, the alarm will emit a 90dBA local audible signal and activate the high intensity strobe. During the alarm period the strobe will flash at a brightness of 177 candela 60 times per minute. After the smoke has cleared from the detector, the unit will revert to the normal stand-by condition.

Standard Features

- Available in 120VAC
- 177 candela rating (UL 1971 listed)
- Horn frequency 3100Hz (nominal)
- Patented three position test switch
- Nominal 2.5% Sensitivity
- Quick-Disconnect Wiring Harness (CS Models)
- Form C Auxiliary Relay Contacts for Remote Annunciation (CS Models)
- 9VDC Battery Back-Up (7109/7139CS/LS) w/Audible Low Battery Chirp
- 120VAC with 9VDC Battery Back-up Models, Visual Does Not Operate on Battery Back-Up
- Relays Operate on Battery Back-Up
- Relay Contacts Will Activate From the Tandem Wire
- 90dBA Continuous Piezo Horn (710CS/LS & 7109CS/LS Series)
- 90dBA Temporal 3 Evacuation Piezo Horn (713CS/LS & 7139CS/LS Series)
- 5-to-1 Signal-to-Noise Ratio
- Fully Insect Screened
- Interconnect with all Gentex tandem capable smoke alarms
- Interconnect up to 6 Alarms (CS Models)
- Easy Wash™ on-site maintenance washing program
- 9 Foot Line Cord (LS Models)
- Mounting Hardware Adapts to Standard Junction Boxes
- Warranty is 1 Year From Date of Purchase

Easy Wash™ - On Site Maintenance Program

Product Listings

- **UL 217 and UL 1971 Listed**
- **CSFM: 7257-0569:104 (710/713CS/LS)**
  7257-0569:118 (7109/7139CS/LS)
- **BS+A/MEA: 285-91-E**
- **BFP (City of Chicago)**
- **MSFM Listing #1929**

Product Compliance

- **NFPA 72**
- **Americans with Disabilities Act (ADA)**

NEMA MEMBER

ASSEMBLED IN THE USA

710CS/LS and 7109CS/LS Series - Continuous Piezo Sounder

Model Number	Part Number	Voltage	Wall Mount	Ceiling Mount	9 Foot Line Cord	Interconnect Up To 6 Units	Form C Contacts	9VDC Battery Back-Up
710CS-W	907-0231-002	120 VAC	●			●	●	
710CS-C	907-0232-002	120 VAC		●		●	●	
710CSX-W	907-0235-002	120 VAC	●			●	●	
710CSX-C	907-0236-002	120 VAC		●		●	●	
710LS	907-0239-002	120 VAC	●		●			
7109CS-W	917-0007-002	120 VAC	●			●	●	●
7109CS-C	917-0008-002	120 VAC		●		●	●	●
7109CSX-W	917-0010-002	120 VAC	●			●	●	●
7109CSX-C	917-0011-002	120 VAC		●		●	●	●
7109LS	917-0006-002	120 VAC	●		●			●

713CS/LS and 7139CS/LS Series - Temporal 3 Piezo Sounder

Model Number	Part Number	Voltage	Wall Mount	Ceiling Mount	9 Foot Line Cord	Interconnect Up To 6 Units	Form C Contacts	9VDC Battery Back-Up
713CS-W	907-0248-002	120 VAC	●			●	●	
713CS-C	907-0249-002	120 VAC		●		●	●	
713CSX-W	907-0252-002	120 VAC	●			●	●	
713CSX-C	907-0253-002	120 VAC		●		●	●	
713LS	907-0256-002	120 VAC	●		●			
7139CS-W	917-0019-002	120 VAC	●			●	●	●
7139CS-C	917-0020-002	120 VAC		●		●	●	●
7139CSX-W	917-0021-002	120 VAC	●			●	●	●
7139CSX-C	917-0022-002	120 VAC		●		●	●	●
7139LS	917-0018-002	120 VAC	●		●			●

NOTES:

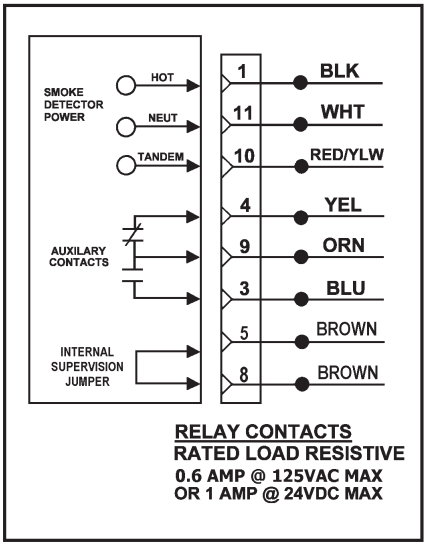
Candela Rating: 177 Candela UL 1971 Listed Strobe Light
Flash Rate per Minute: 60 Minimum

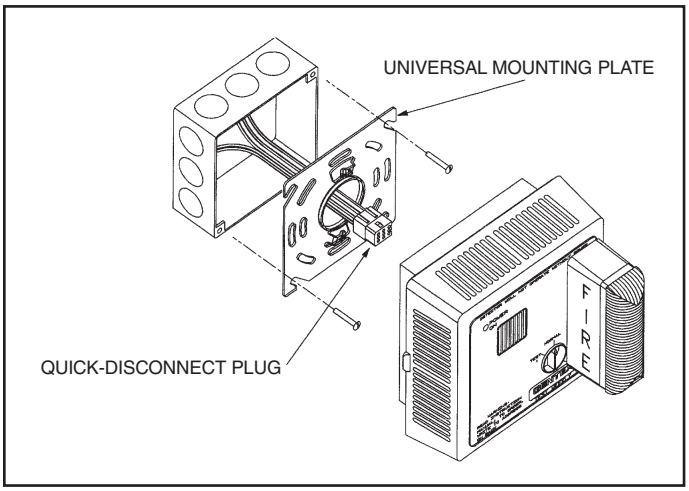
"W" = Wall Mount
"C" = Ceiling Mount

- Available in square configuration only.
- Ceiling mount not available in line cord models.
- The X models have the ability to turn the strobe on from a field mounted relay
- When testing 713/7139 units, it may take up to 16 seconds longer for smoke alarm to go in or out of alarm mode.
- It is recommended that 710/713/7109/7139 Series smoke alarm be tested weekly.
- Refer to Technical Bulletin 002 for Easy Wash™ on site washing instructions
- 710/7109 units produce a non-temporal audible alarm and are therefore not intended for locations where the desired action of the occupant(s) is evacuation.
- 713/7139 units produce a temporal 3 audible alarm. Per NFPA 72, the American National Standard Audible Emergency Evacuation Signal as defined in ANSI S3.41, is required whenever the intended response is to evacuate the building.

Wiring Diagram

710CS
7109CS
713CS
7139CS

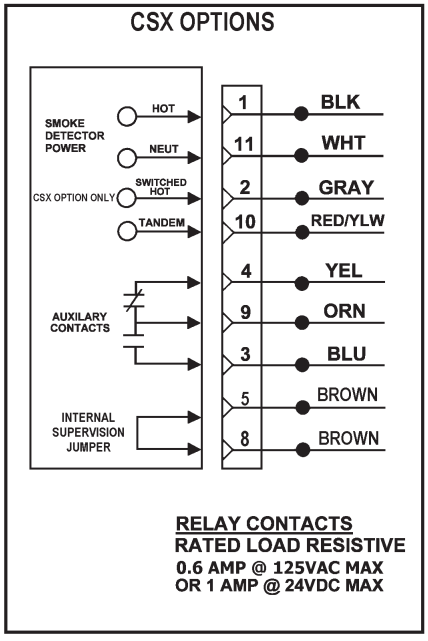


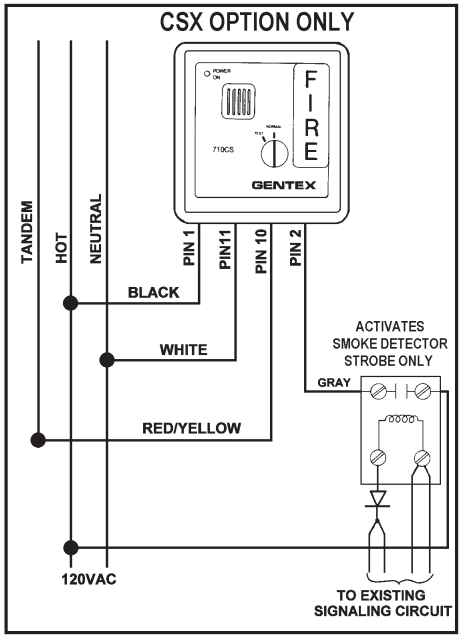


Electrical Specifications

Operating Voltage. . . . . .120 VAC, 60Hz
Operating Current. . . . . 0.400 amps (Peak)
Operating Ambient Temp Range. . . . . 40°F to 100°F
Alarm Horn Rating. . . . . 90 Decibels at 10 Ft.
Nominal Sensitivity. . . . . 2.5% Obscuration
Auxiliary Relay (Standard). . . . . 1 Form C (0.6 amp)
(710/713CS and 7109/7139CS)
Size . . . . . .5.5” Square x 4.75” Overall Depth
Secondary Power Source. . . . . Alkaline 9VDC battery (supplied)
(7109CS/LS and 7139CS/LS)

The CSX models are used for remote annunciation of the strobe.





710/713CS/LS
7109/7139CS/
SERIES

Architect & Engineering Specifications

The photoelectric smoke alarm shall be a Gentex Model 710LS, 713LS, 7109LS, 7139LS or approved equal which shall provide at least the following features and functions.

1. Nominal sensitivity shall be 2.5%.
2. The smoke alarm shall utilize an infrared LED sensing circuit which pulses in 4 to 5 second intervals; when subjected to smoke the pulse rate shall increase 8 times. After 2 consecutive pulses in smoke, the detector will alarm.
3. The smoke alarm shall provide minimum 5-to-1 signal-to-noise ratio in the optics frame to assure stability of operation in environments of high RF and transient conditions.
4. The sensing chamber shall be fully screened to prevent entrance of small insects, thus reducing the probability of false alarms.
5. A continuous piezo horn rated at 90dBA at 10 ft. (710CS/LS & 7109CS/LS units) and a temporal 3 piezo horn rated at 90dBA at 10 ft. (713CS/LS & 7139CS/LS units).
6. A visual LED monitor (condition indicator) will pulse in normal operation and steady on in alarm.
7. The visual signal shall have a minimal light output of 177 Candela.
8. An easily accessible test knob shall be provided. The test knob in the TEST position will simulate an actual smoke condition of approximately 3.5% causing the smoke alarm to alarm within 20-36 seconds. Also the alarm shall test for the most sensitive setting. An alarm during this test will be a maintenance indicator. Return to Gentex Corporation for maintenance.
9. The smoke alarm shall be provided with a 9 foot line cord with a strain relief connection, if a portable unit.
10. Unit must be capable of providing a monitored battery back-up.
11. Unit must be UL 217 and UL 1971 listed for wall mount.
12. Unit shall also meet all requirements of the State of California Fire Marshal, Bureau of Standards and Appeals and the Americans with Disabilities Act (ADA).

Architect & Engineering Specifications

The photoelectric smoke alarm shall be a Gentex Model 710CS, 713CS, 7109CS, 7139CS or approved equal which shall provide at least the following features and functions.

1. Nominal sensitivity shall be 2.5%.
2. The smoke alarm shall utilize an infrared LED sensing circuit which pulses in 4 to 5 second intervals; when subjected to smoke the pulse rate shall increase 8 times. After 2 consecutive pulses in smoke, the smoke alarm will alarm.
3. The smoke alarm shall provide minimum 5-to-1 signal-to-noise ratio in the optics frame to assure stability of operation in environments of high RF and transient conditions.
4. The sensing chamber shall be fully screened to prevent entrance of small insects, thus reducing the probability of false alarms.
5. A continuous piezo horn rated at 90dBA at 10 ft. (710CS/LS & 7109CS/LS units) and a temporal 3 piezo horn rated at 90dBA at 10ft. (713CS/LS & 7139CS/LS units).
6. A visual LED monitor (condition indicator) will pulse in normal operation and will remain solid in alarm.
7. The visual signal shall have a minimal light output of 177 Candela and will flash one time per second.
8. An easily accessible test knob shall be provided. The test knob in the TEST position will simulate an actual smoke condition of approximately 3.5% causing the smoke alarm to alarm within 20-36 seconds. Also the detector shall test for the most sensitive setting. An alarm during this test will be a maintenance indicator. Return to Gentex Corporation for maintenance.
9. The smoke alarm shall be provided with a Form C contact for remote annunciation purposes.
10. The manufacturer shall provide other compatible detector models with the following optional features: a) auxiliary Form C relay contact for initiating remote functions and annunciation; b) relay option that is capable of activation by tandem interconnect wire.
11. Unit must be capable of providing a monitored battery back-up.
12. Unit must be UL 217 and UL 1971 listed for wall mount or ceiling mount.
13. Unit shall also meet all requirements of the State of California Fire Marshal, Bureau of Standards and Appeals and the Americans with Disabilities Act ADA).

All equipment shall be completely factory assembled, wired and tested, and the contractor shall be prepared to submit a certified letter testifying to this condition. Detectors which do not meet all of the requirements of this specification will not be considered.

12 units per carton
21 pounds per carton

GENTEX CORPORATION

Fire Protection Products Group • www.gentex.com
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616.392.7195 • 1.800.436.8391 • 616.392.4219 Fax

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551-0037-02

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CARBON MONOXIDE ALARM

CAT. CO5120BN

ELECTROCHEMICAL CO SENSOR
Most accurate technology available for detecting carbon monoxide as compared to other sensing technologies.

LATCHING ALARM INDICATOR
Remembers which unit initiated an alarm.

INTELLIGENT SENSING TECHNOLOGY
Microprocessor controlled to reduce the number nuisance alarms.

TWO LOCKING FEATURES
Pins lock battery drawer and/or alarm to base. Perfect for apartment, dormitory or hotel applications.

BRK®

THE PROFESSIONAL STANDARD

120V AC, 60Hz Wire-in with 9V Battery Backup

Description:

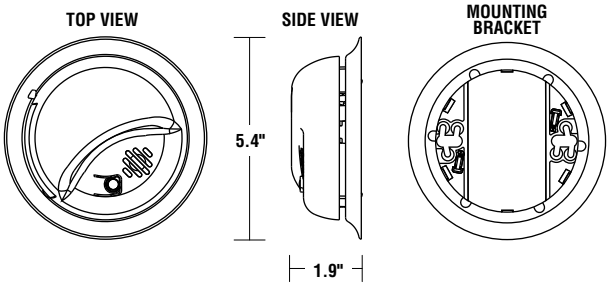
The BRK Brands, Inc. Cat. No CO5120BN is a wire-in, 120 VAC 60Hz single and / or multiple station carbon monoxide alarm specifically designed for residential and institutional applications including sleeping rooms of hospitals, hotels, motels, dormitories and other multi-family dwellings as defined in standard NFPA 101. Model CO5120BN complies with UL2034, NFPA 720, HUD, FHA and other agencies that model their codes after the above agencies. They meet building codes where AC/DC carbon monoxide alarms are required either separately or in combination. The alarms are interconnectable up to 18 devices, of which 12 can be smoke alarms.

The BRK CO5120BN features an electrochemical carbon monoxide sensor, an 85dB horn, 9V battery back-up and a silence feature. “Intelligent Sensing Technology” is designed to reduce nuisance alarms. “Latching Alarm Indicator” remembers which unit initiated an alarm. When interconnected in a series, the unit that triggered the alarm will store in memory or “latch” the information and begin to flash the LED indicator 2 seconds on, 2 seconds off. A single button test/silence button eliminates confusion. Battery installation and removal can occur while the unit is mounted to the ceiling or wall via the side load battery compartment. Other Contractor Preferred features include a dust cover to keep alarm clean during construction, keyhole slots in the mounting bracket eliminate the need to remove the electrical box screws for installation. Two locking features are provided to prevent battery theft and/or theft of the unit. Connection toAC power is made with a“Quick-Connect” wiring harness. Installation is quick, easy and cost effective.

LIMITED 5 YEAR WARRANTY

Listed to UL 2034 Standard

CAT. CO5120BN



ARCHITECTURAL AND ENGINEERING SPEC

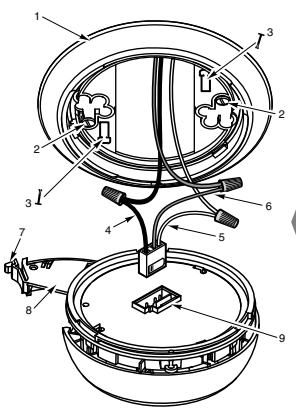
The carbon monoxide alarm shall be a BRK Model CO5120BN and shall provide at a minimum the following features and functions:

1. An electrochemical CO sensor.
2. Powered by 120V AC, 60Hz and have a monitored 9V battery backup and a solid state piezo horn rated at 85dB at 10 ft. and shall be capable of self restoring.
3. The unit shall perform self diagnostic tests and issue a malfunction warning audibly (three chirps) if the unit malfunctions.
4. A visual LED power-on indicator to confirm unit is receiving power or to confirm unit has switched to battery backup mode.
5. The CO sensor is adjusted not to detect CO levels below 30 PPM and will not alarm when exposed to constant levels of 30 PPM for 30 days. It will alarm at the following levels: 400 PPM CO between 4 and 15 minutes, 150 PPM CO between 10 and 50 minutes and 70 PPM CO between 60 and 240 minutes.
6. A test/silence button to check all alarm functions and to silence any nuisance alarms. In addition, the unit shall have a low battery silence feature to quiet the low battery chirp for up to eight hours.
7. A "Smart Interconnect" feature allows the unit to be interconnected to BRK smoke alarms. During a smoke event, the CO5120BN horn pattern shall emit the smoke alarm horn pattern (3 beeps, pause, 3 beeps pause). During a CO event, the interconnected CO alarms sound their normal horn pattern.
8. The unit shall be capable of operating between 40°F (4°C) and 100°F (38°C) and relative humidity between 10% and 95%.
9. The unit shall at a minimum meet the requirements of UL2034, NFPA 720 and ICC.

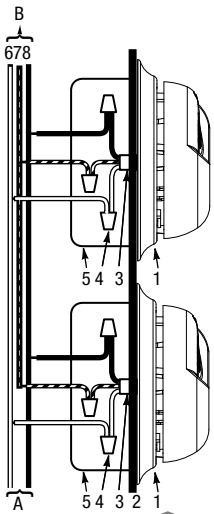
INSTALLATION OF ALARM

Installation of this carbon monoxide alarm must conform to all local electrical codes and Article 760 of the National Electrical Code (NFPA 70) and NFPA 720. Interconnected units must meet the following requirements: Total length of wire interconnecting units should be less than 1000 feet, be #18 gauge or larger and be rated at least 300V. It is recommended that all units be on the same fuse or circuit breaker. If local codes do not permit, be sure the neutral wire is common to both phases.

THE PARTS OF THIS CO ALARM



1. Mounting bracket
2. Mounting Slots
3. Locking Pins
4. Hot (Black) AC Wire
5. Nuetral (White) AC Wire
6. Interconnect (Orange) Wire
7. Battery Drawer Latch
8. Battery Drawer - Install 9V battery here
9. Quick-Connect Plug



A. Unswitched 120VAC 60 Hz source
B. To additional units; Maximum = 18 total (Maximum 12 Smoke Alarms)

1. CO Alarm
2. Ceiling or Wall
3. Power Connector
4. Wire Nut
5. Junction Box
6. Neutral Wire (White)
7. Interconnect Wire (Orange)
8. Hot Wire (Black)

TECHNICAL SPECS

Alarm Dimensions:	5.4" dia x 1.9"H
Weight:	6.4 oz
Operating Voltage:	120V AC 60Hz w/ 9V battery backup
Operating Current:	.09 amps (standby/alarm)
Temperature Range:	40°F (4°C) to 100°F (38°C)
Humidity Range:	10% to 95% relative humidity (RH)
Audio Alarm:	85dB at 10 feet
Test/Silence:	Electronically simulates carbon monoxide condition, causing the unit to alarm Press and hold test/silence button
Alarm Reset:	Automatic when CO clears
Interconnections:	Up to 18 units of First Alert or BRK Smoke, CO and Heat Alarms. Maximum of 12 smoke alarms. See user's manual for details.
CO Sensor:	Electrochemical
Indicator Lights/Sounds:	
AC Power:	Constant Green LED
DC Power:	Intermittent Green LED
Local Alarm:	Red LED flashes rapidly
Remote Alarm:	Red LED out.
Latching Alarm:	Red LED flashes every 5 seconds after local alarm stops
Listing:	Listed to UL2034 Standard

SHIPPING SPECS:

Individual Carton Dimensions	5.54"L x 2.10"W x 5.72"H
Weight	0.61 lbs.
Cube	0.038 ft3
UPC	0 29054 85617 3
Master Carton Dimensions	13.13"L x 5.81"W x 12.13"H
Master Pack	12
Weight	9.2 lbs.
Cube:	0.54 ft3
I2of5:	300 29054 85617 4
Pallet Information	
Cases per Layer	25
Number of Layers:	3
Cases per Pallet:	75
Units per pallet:	900
Cube:	47.3 ft3
Weight:	758 lbs.

BATTERY DRAWER LOCK

Remove Pin

Push locking pin through hole near battery drawer on the back of the alarm.

THE PROFESSIONAL STANDARD

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CM2931

Simplex

Multi-Application Peripherals

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

IDNet™ and MAPNET II® Communicating Devices, Individual Addressable Modules (IAMs)

Features

IDNet or MAPNET II addressable communications supply both data and power over a single wire pair to provide:**

- Supervised Class B monitoring of normally open, dry contacts
- Total wiring distance from IAM to supervision resistor(s) of up to 500 ft (152 m)
- Monitored connection is compatible with Simplex® 2081-9044 Overvoltage Protectors for outdoor wiring or electrically noisy applications
- For use in indoor locations up to 158° F (70° C) such as attic spaces or similar applications

For use with following Simplex control panels:

- Model Series 4008, 4010, 4010ES, 4100U and 4100ES fire alarm control panels for IDNet communications
- Model Series 4100/4100U/4100ES, 4120, 4020, and 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Model 4090-9001:

- Enclosed design minimizes dust infiltration
- Mounts in standard single gang electrical box
- Screw terminals for wiring connections
- Visible LED flashes to indicate communications
- Optional covers are available to allow LED to be viewed after installation (requires mounting bracket, ordered separately)

Model 4090-9051:

- Encapsulated design for extended exposure to high humidity (LED is not present on this model)
- Color coded 18 AWG leads for wiring

IDNet communications provides current limited monitoring:

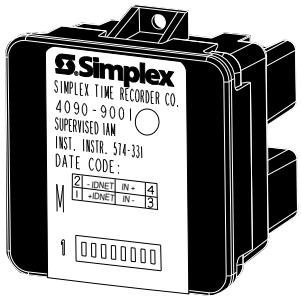
- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

Multiple operation modes are available and are selectable at the control panel:

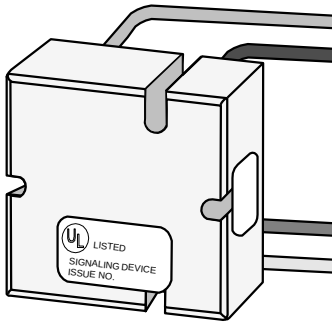
- Contact closure status can be tracked
- Momentary contact closure conditions can be selected at the panel to be latched or tracked (not available with the 2120 CDT)

UL listed to Standard 864

* 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 7300-0026:223 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. 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 Safety Products Westminster.



4090-9001 Supervised IAM
(shown approximately 3/4 size)



4090-9051 Supervised IAM
(shown approximately 3/4 size)

Description

Individual addressable modules (IAMs) receive both power and communications from a two-wire MAPNET II or IDNet circuit. They provide location specific addressability to a single initiating device (such as single station smoke detector alarm contacts or heat detector contacts) or multiple devices at the same location by monitoring normally open dry contacts and the wiring to an end-of-line resistor.

Model 4090-9001 is packaged in a thermoplastic housing and provides screw terminal connections and a status indicating LED.

Model 4090-9051 is an encapsulated package with wire leads. It does not provide a status indicating LED.

Operation

Contact Closure. Closure of the monitored contact(s) initiates an alarm or other response as programmed at the fire alarm control panel. An open in the monitored circuit wiring will cause a trouble to be reported.

Panel Selections. Selections can be made at the control panel to maintain the alarm condition if the initiating device contacts are momentary, such as from a rate-of-rise heat detector, or to track the device contact status (not available with the 2120 CDT).

Current Limited Operation Applications

For use with IDNet communications only, these IAMs can provide quad-state sensing of normal, open circuit, short circuit, and current limited conditions. (Program type is "T-sense.") With the proper end-of-line and current limiting resistors, dual functions such as tamper switch and waterflow switch monitoring can be determined and communicated by a single addressable point.

IAM Product Selection

Model	Description
4090-9001	Supervised IAM, mounted in thermoplastic housing with screw terminals; see applicable options below
4090-9051	Supervised IAM, encapsulated with wire leads

Optional Trim Plates and Mounting Bracket for Model 4090-9001

Model	Description
4090-9806	For semi-flush mounted box — Trim plate with LED viewing window, requires 4090-9810 mounting bracket, includes mounting screws; galvanized steel
4090-9807	For surface mounted box
4090-9810	Mounting bracket, mounts IAM to electrical box and provides screw holes for trim plate, **required for optional trim plates**

End-of-Line Resistor Harnesses (ordered separately as required)

Model	Reference No.	Description
4081-9004	733-886	6.8 kΩ, 1/2 W; Standard end-of-line resistor harness for N.O. contact supervision
4081-9003	733-896	4.7 kΩ, 1/2 W — Use for current limited monitoring applications
4081-9005	733-984	1.8 kΩ, 1/2 W

Specifications

Electrical

Power and Communications		MAPNET II or IDNet, auto selected, 1 address per IAM
Input Requirements		Normally open, dry contacts
Wire Connections	4090-9001	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
	4090-9051	Color coded wire leads, 18 AWG (0.82 mm^2), 8" long (203 mm)
Reference Documents	Installation Instructions	574-331 for 4090-9001; 579-572 for 4090-9151
	Field Wiring Diagrams	842-073 for IDNet operation; 841-804 for MAPNET II operation

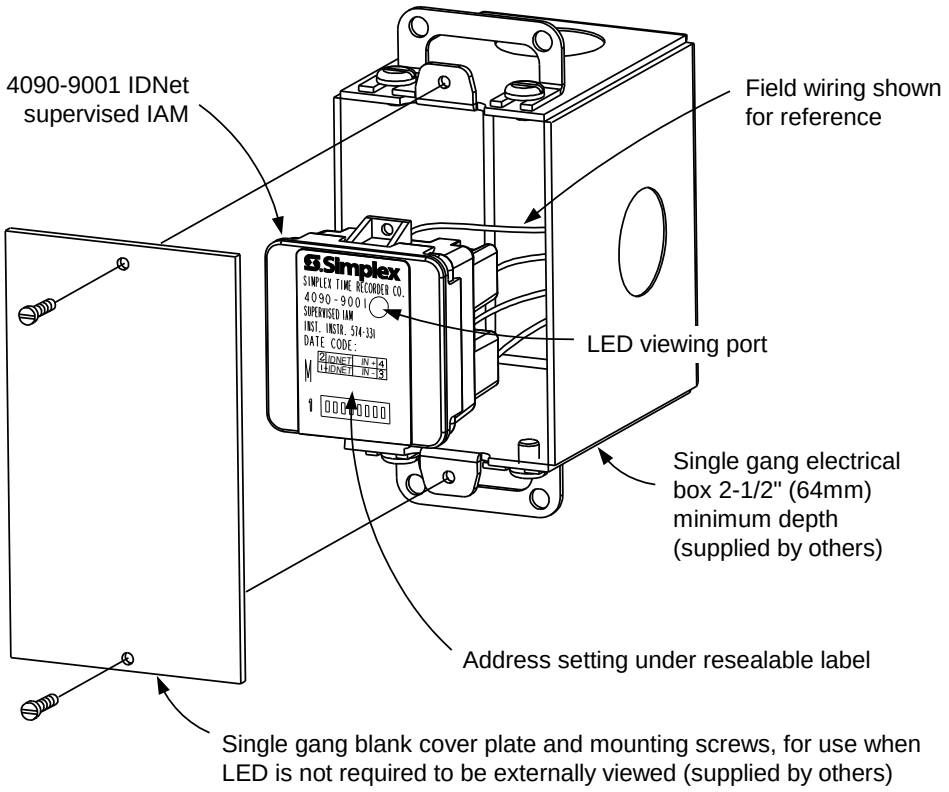
Wiring Distances

Distance from IAM to Contacts	500 ft (152 m) maximum without protectors
	400 ft (122 m) maximum with 2081-9044 Overvoltage Protectors
Wiring Distance Reference per channel, MAPNET II or IDNet Communications	2500 ft (762 m) maximum from fire alarm control panel
	10,000 ft (3048 m) maximum total wiring distance (including T-Taps)

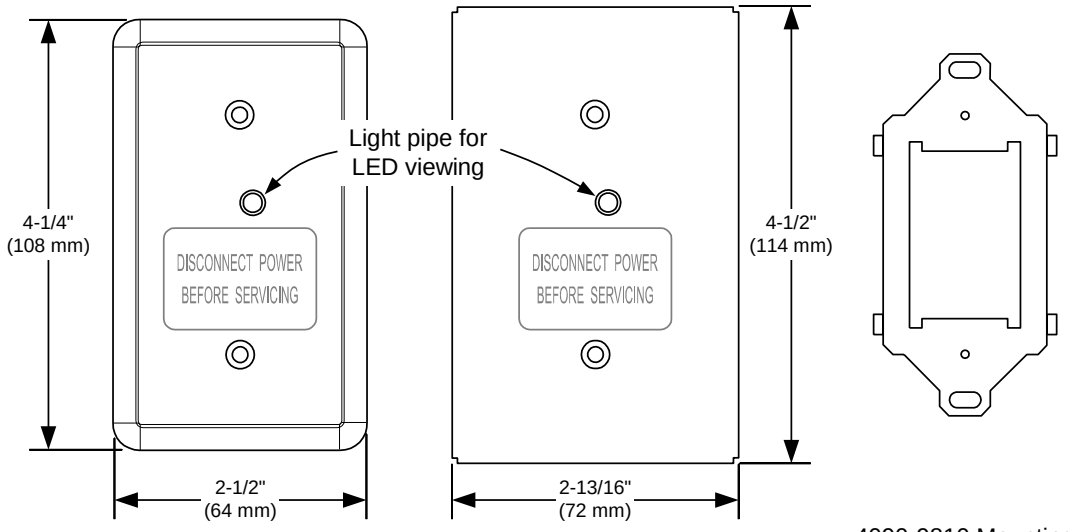
Mechanical

Dimensions	4090-9001	1-9/16" W x 1-3/4" H x 1-1/4" D (40 mm x 44 mm x 32 mm)
	4090-9051	1-9/16" W x 1-9/16" H x 9/16" D (40 mm x 40 mm x 14 mm)
Housing Material, 4090-9001		Black thermoplastic
Encapsulation Material, 4090-9051		Epoxy, beige
Temperature Range		32° to 158° F (0° to 70° C); intended for indoor operation
Humidity Range		Up to 93% RH at 100° F (38° C)

Mounting Information



Mounting Reference, Single Gang Blank Cover Plate



4090-9806, Trim plate for semi-flush mounted box

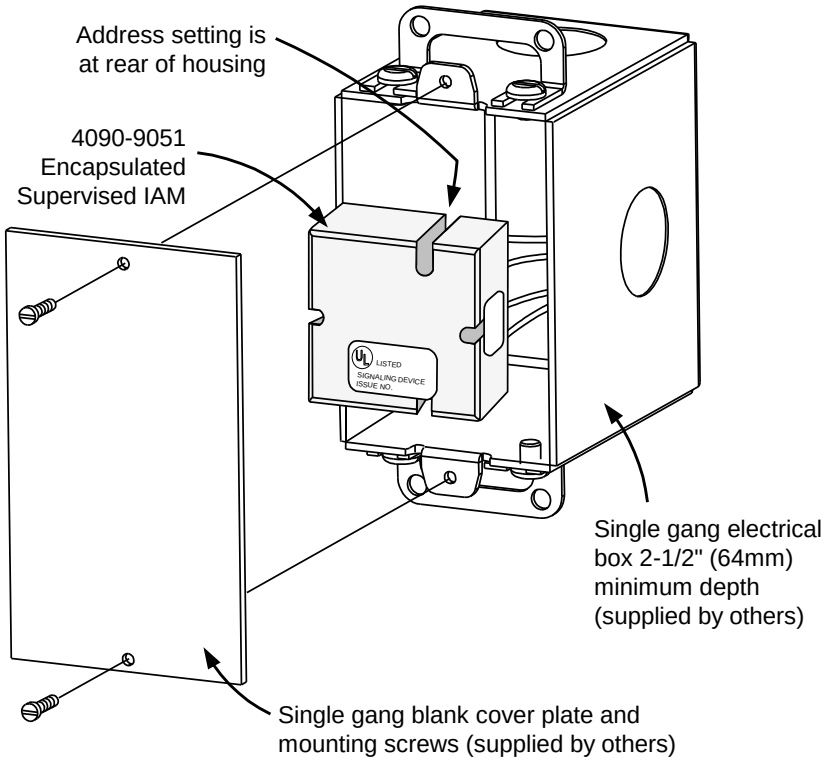
4090-9807, Trim plate for surface mounted box

4090-9810 Mounting bracket, ordered separately

NOTE: These mounting plates require mounting bracket 4090-9810.

Optional Trim Plates and Mounting Bracket for Visible LED

4090-9051 Mounting Information



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Simplex®

LifeAlarm® Fire Alarm Controls

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

4009 IDNet™ NAC Extender for Control from 4010, 4010ES, 4100ES/4100U IDNet Communications, or Conventional NACs

Features

Provides additional notification appliance circuit (NAC) capacity with flexible operation modes and power-limited design

Four, Class B NACs are standard:

- Rated 2 A each for conventional reverse polarity 24 VDC notification appliances and providing multiple operation modes
- Can be selected to provide synchronization for Simplex® visible notification strobe flashes
- Capable of controlling TrueAlert® non-addressable notification appliances operating with SmartSync™ two-wire control mode**

Input control options:

- IDNet addressable communications from a Simplex model 4010, 4010ES, 4100U, or 4100ES Fire Alarm Control Panel**
- Or from one or two conventional 24 VDC NACs with multiple output control options

IDNet communications control benefits:

- Provides status monitoring and individual NAC control using a single address per 4009 IDNet NAC Extender
- Supports IDNet "Device Level" earth fault location

WALKTEST™ operation is available with either input choice

Internal 8 A power supply/battery charger:

- Charges internal batteries up to 12.7 Ah or up to 18 Ah batteries in external cabinet
- Provides status monitoring of battery, input power, and earth faults
- Rated 8 A for "Special Application" appliances; including Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, horn/strobes, and speaker/strobes
- Rated 6 A for "Regulated 24 DC" appliance power

Optional 4009 IDNet NAC Extender modules:

- IDNet Communications Repeater provides Class B or Class A output
- IDNet Communications Fiber Optic Receiver/Repeater, available as Class B or Class X
- Four additional Class B NACs, rated 1.5 A for Special Application appliances; 1 A for Regulated 24 DC appliance power
- Class A, Two Circuit Adapter Module

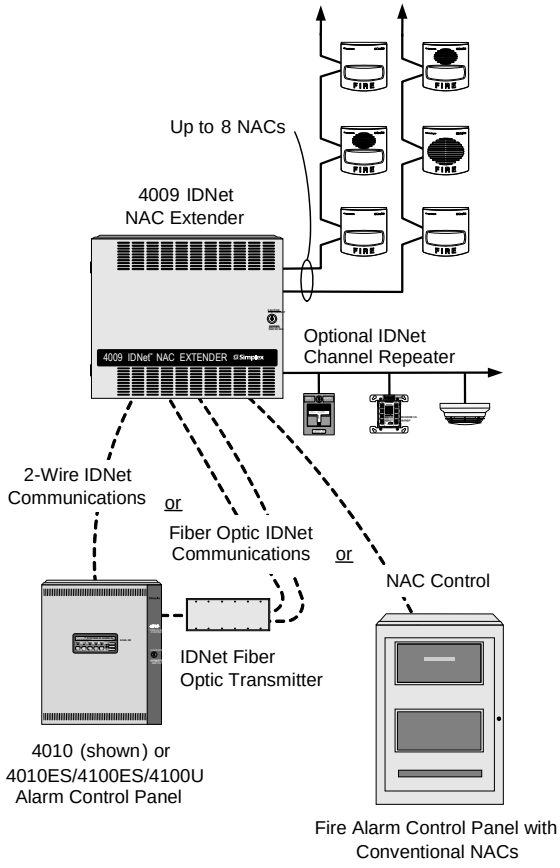
UL Listed to Standard 864

External Accessories

IDNet communication fiber optic transmitters:

- For applications requiring the data integrity available with fiber optic communications
- Available as Class B or Class X
- Mounts in standard six-gang electrical box

External battery cabinet for 18 Ah batteries



4009 IDNet NAC Extender Connection Reference Drawing

Introduction

ADA Compliance. Complying with the notification requirements of ADA (Americans with Disabilities Act) may require more notification appliance power than is available within the fire alarm control panel. When additional power is required, a Simplex 4009 IDNet NAC Extender can provide up to 8 A of NAC power with up to eight, supervised reverse polarity NACs.

Location Flexibility. The 4009 IDNet NAC Extender can be mounted close to a compatible dedicated host panel or can be located remotely for convenient power distribution. Multiple operation modes and multiple connection options further increase location flexibility.

Additional Information. For additional operation detail and application information, refer to Installation Instructions 574-181 and field wiring diagram 842-068.

* ULC listed model is 4009-9202CA. 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 7300-0026:214 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. 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 SimplexGrinnell LP, Westminster.

** 4100U requires revision 11 software or higher for compatibility. 4010 requires revision 2 software or higher for compatibility.

Application and Operation Information

IDNet Addressable Communications Compatible. Up to ten (10), 4009 IDNet NAC Extenders can be controlled per 4010ES/4100ES/4100U IDNet communications channel; up to five (5) can be controlled on the 4010 IDNet communications channel. Each output NAC can be individually controlled for general alarm or selective area notification requiring only one point address per Extender. Individual Extender NACs can also be manually controlled from the host panel. IDNet controlled extenders will inform the host panel of troubles via IDNet communications. 4010ES/4100ES/4100U control panels control using multi-point rules, refer to data sheet S4090-0011 for details.

Optional IDNet Repeaters. IDNet communications can be repeated with the optional IDNet Repeater Module or with the optional Fiber Optic Receiver Module. Up to 100 of the IDNet channel points can be repeated once (refer to pages 3 and 5 for details). Repeated IDNet communications also support the "device level" earth fault location utility of the host panel.

Hardwire Control Applications. For applications where an existing (or new) conventional NAC needs additional power, the 4009 IDNet NAC Extender can be controlled directly from the NAC. Either one or two NACs, from either the same, or from different host fire alarm control panels, can be connected to control the 4009 IDNet NAC Extender output NACs. Multiple control selections provide flexible operation. (Refer to page 4 for more detail.) Alarms from the host panel will activate the four, 4009 IDNet NAC Extender NACs (or optionally, eight NACs) to extend the alarm.

The 4009 IDNet Extender monitors itself and each of its output NACs for trouble conditions, including earth faults. Extenders wired to conventional NACs will indicate a trouble by opening the path to the NAC's end-of-line resistor, but retaining the ability to respond to alarms. Individual troubles are also annunciated by LEDs located on the 4009 IDNet NAC Extender main circuit board. (Refer to page 7 for more diagnostic information.)

Product Selection

Standard Models

Model	Description	
4009-9201	120 VAC input	4009 IDNet NAC Extender with 4, Class B NACs and 8 A power supply
4009-9202CA*		
4009-9301	240 VAC input	

* ULC listed model

Optional Modules (for on-site installation)

Model	Description		Comments
4009-9807	Additional four point NAC module, rated 1.5 A Special Application appliances; 1 A for Regulated 24 DC appliance power, Class B		One maximum
4009-9808	Dual Class A adapter (for two NAC outputs)		Select as required (4 maximum)
4009-9809	IDNet Repeater, output is Class A or Class B		Select **either** an IDNet Repeater **or** a Fiber Optic Receiver as required
4009-9810	Fiber Optic Receiver	Class B	
4009-9811		Class A (IDNet), Class X (fiber)	
4009-9805	Red Appliqué for door		Select if required
2975-9801	Semi-Flush Trim Kit	Beige trim	1-7/16" wide (78 mm), use if required for semi-flush installations
2975-9802		Red trim	

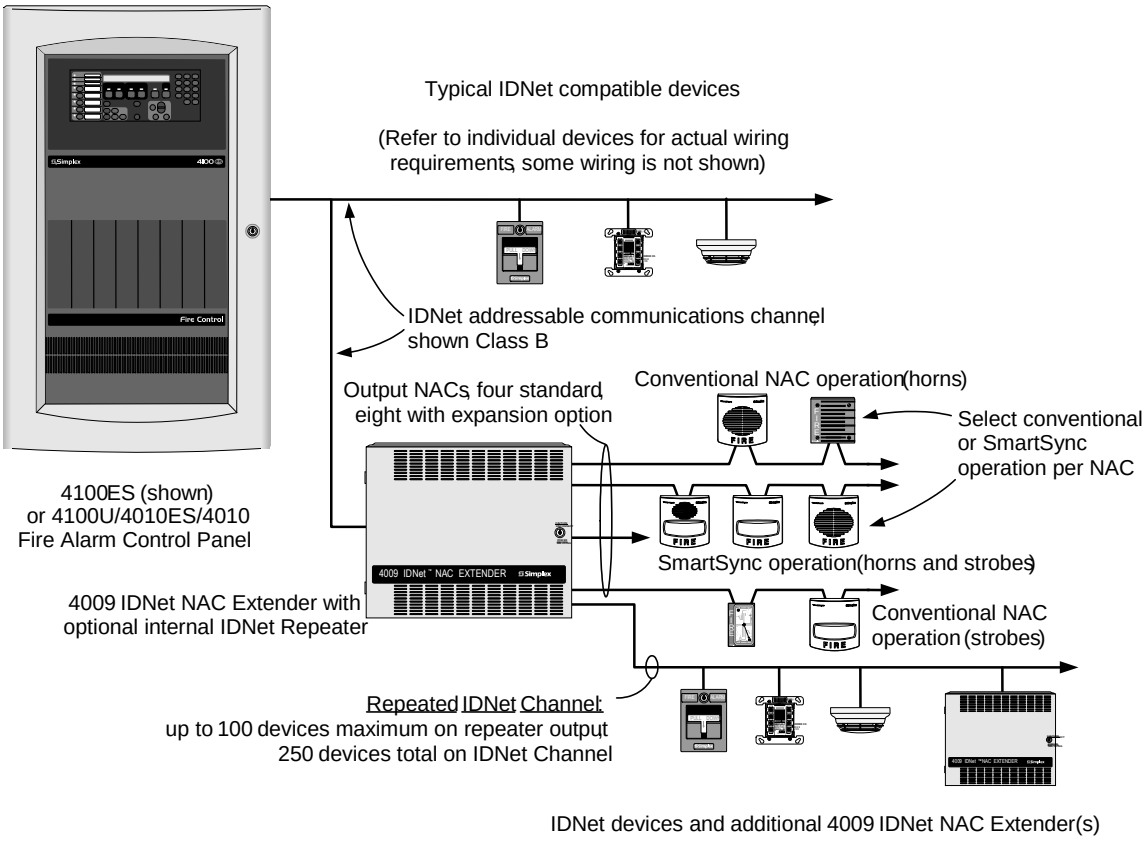
Battery Selection (select battery size per system requirements)

Model	Description	Comments
2081-9272	6.2 Ah Battery, 12 VDC	Two batteries are required, 24 VDC operation
2081-9274	10 Ah Battery, 12 VDC	
2081-9288	12.7 Ah Battery, 12 VDC	
2081-9275	18 Ah Battery, 12 VDC	Requires external battery cabinet, two batteries are required, 24 VDC operation

External Accessories (select per system requirements)

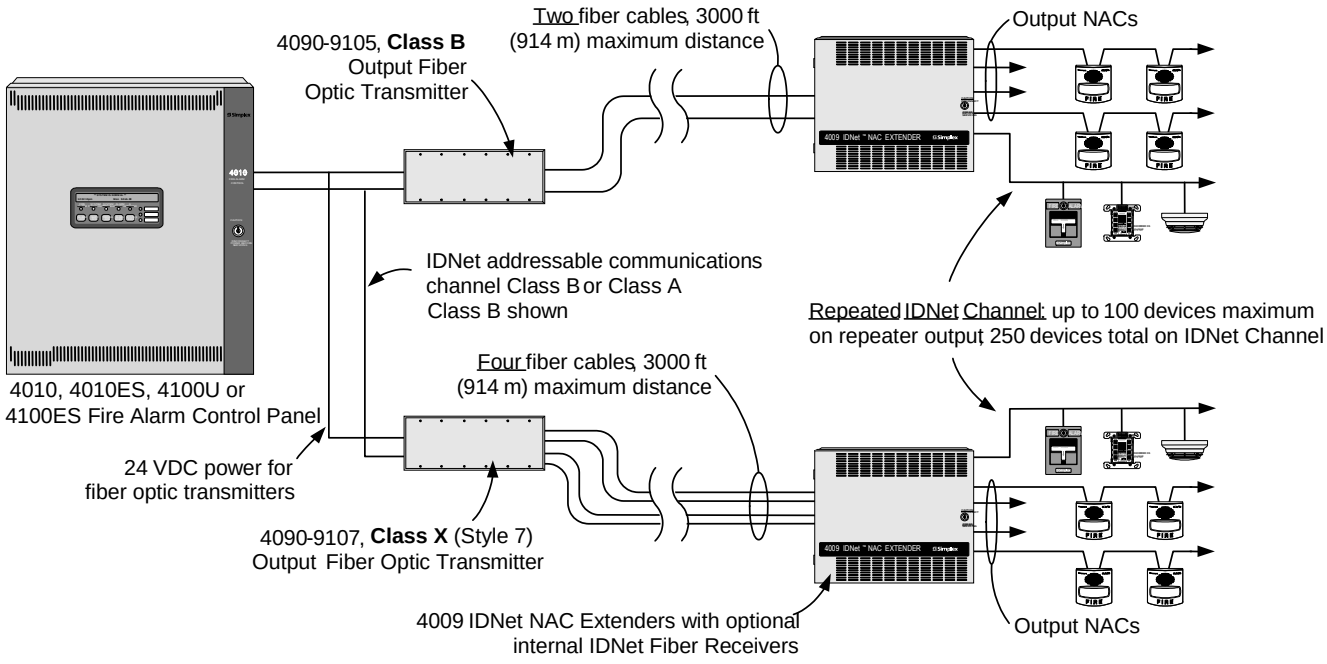
Model	Description		Comments
4090-9105	IDNet Fiber Optic Transmitter	Class B operation	Mounts in six-gang electrical box, refer to page 4 for mounting details
4090-9107		Class X operation	
4009-9801	External battery cabinet for up to 18 Ah batteries, beige		16-1/4" W x 13-1/2" H x 5-3/4" D (413 mm x 343 mm x 146 mm)
4081 Series	End-of-Line Resistor Harnesses; see data sheet S4081-0003 for details		

Typical IDNet Connection Example



NOTE: Up to ten (10) 4009 IDNet NAC Extenders may be connected per 4010ES, 4100ES or 4100U IDNet channel, up to five (5) on the 4010 IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver).

Typical Fiber Optic System Connections



NOTE: Up to ten (10) 4009 IDNet NAC Extenders may be connected per 4010ES, 4100ES or 4100U IDNet channel, up to five (5) on the 4010 IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver). Fiber optic transmitters connect to only one 4009 IDNet NAC Extender.

Hardwire Control Connection Information

NAC Input Selections. The 4009 IDNet NAC Extender can be selected to:

- Track input NAC operation **or** to provide a locally generated code, selectable per NAC input
- If selected for local coding, NAC outputs can be either **Temporal Coded** or **60 Beats/min March Time Coded,** one code selection per extender (input NACs must be on continuous with Alarm)
- Additionally, NAC outputs can be selected to provide the Simplex strobe synchronization signal. This signal will synchronize the flashes of synchronized strobes but will be ignored by free-run strobes and audible devices. (Strobes are for operation by noncoded NACs.)

NAC input to NAC output control can be selected for standard and optional NACs per the following table:

Conventional NAC Output Operation Options

Input	A	B	C
NAC 1	NACs 1 & 2, 5 & 6	NACs 1-4	NACs 1-8
NAC 2	NACs 3 & 4, 7 & 8	NACs 5-8	None

SmartSync NAC Output Operation

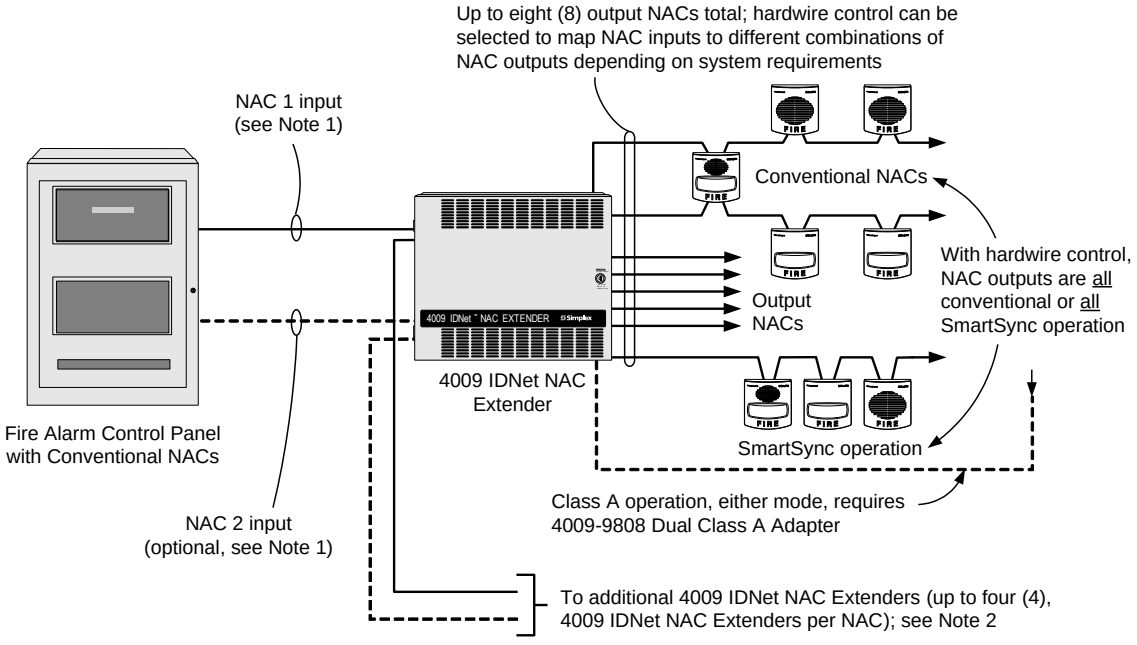
Input	NAC Control Function	
NAC 1	Strobe Control	All NAC outputs (1-8)
NAC 2	Horn Control	

SmartSync Notification Appliance Control

The TrueAlert Notification Appliance product line includes addressable and non-addressable operation. Non-addressable models are available with 2-wire SmartSync operation or conventional 4-wire operation. The following details apply to use with the 4009 IDNet NAC Extender:

- TrueAlert non-addressable models with SmartSync operation allow audible notification to be separately controlled over the same wire pair that controls visible notification
- 4009 IDNet NAC Extenders can be selected to provide SmartSync operation whether controlled by IDNet communications or conventional NACs
- IDNet control allows output NACs to be **individually selected** for conventional **or** SmartSync operation
- With NAC input control, **all** output NACs are selected for either conventional **or** SmartSync operation
- Refer to data sheet S4009-0003 for TrueAlert Addressable operation details, contact your local Simplex product supplier for further information on specific TrueAlert notification appliances

Hardwire Control NAC Connection One-Line Reference Diagram



Notes:

1. For separate audible and visible output NAC control, or SmartSync NAC output operation, two (2) input NACs are required. NAC 1 is "on-until-reset" and NAC 2 is "on-until-silenced."
2. To synchronize strobe flash outputs for up to four (4) 4009 IDNet NAC Extenders, use the synchronized strobe output from a Synchronized Flash Module (4905-9914 for Class B operation, 4905-9922 for Class A operation) or, if available, from a NAC selected to provide synchronized strobe flash output. **NOTE: DO NOT USE a NAC selected for SmartSync operation for this function.**

Refer to Installation Instructions 574-181 for additional information and application guidance

4009 IDNet NAC Extender Specifications

Input Ratings	120 VAC Input (4009-9201)	3A @ 102-132 VAC, 60 Hz
	240 VAC Input (4009-9301)	1.5A @ 204-264 VAC, 50/60 Hz
	Hardwire Control from External NACs, Input Requirements	Conventional reverse polarity operation
		5 mA maximum; 16 to 33 VDC
Output Ratings	Total Rating	8 A, Special Application appliances 6 A, Regulated 24 DC appliance power
	Standard NACs	2 A each, Special Application or Regulated 24 DC appliance power
	Optional NACs (requires 4009-9807)	1.5 A each, Special Application appliances 1 A each, Regulated 24 DC appliance power
	Special Application Appliances	Simplex 4901, 4903, 4904, and 4906 Series non-addressable horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)
	Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required
	Strobe Operation	Up to 33 strobes per NAC can be synchronized; output NACs configured for Simplex synchronized strobe operation are synchronized to each other
	Auxiliary Output	500 mA @ 24 VDC nominal

Optional Modules Ratings

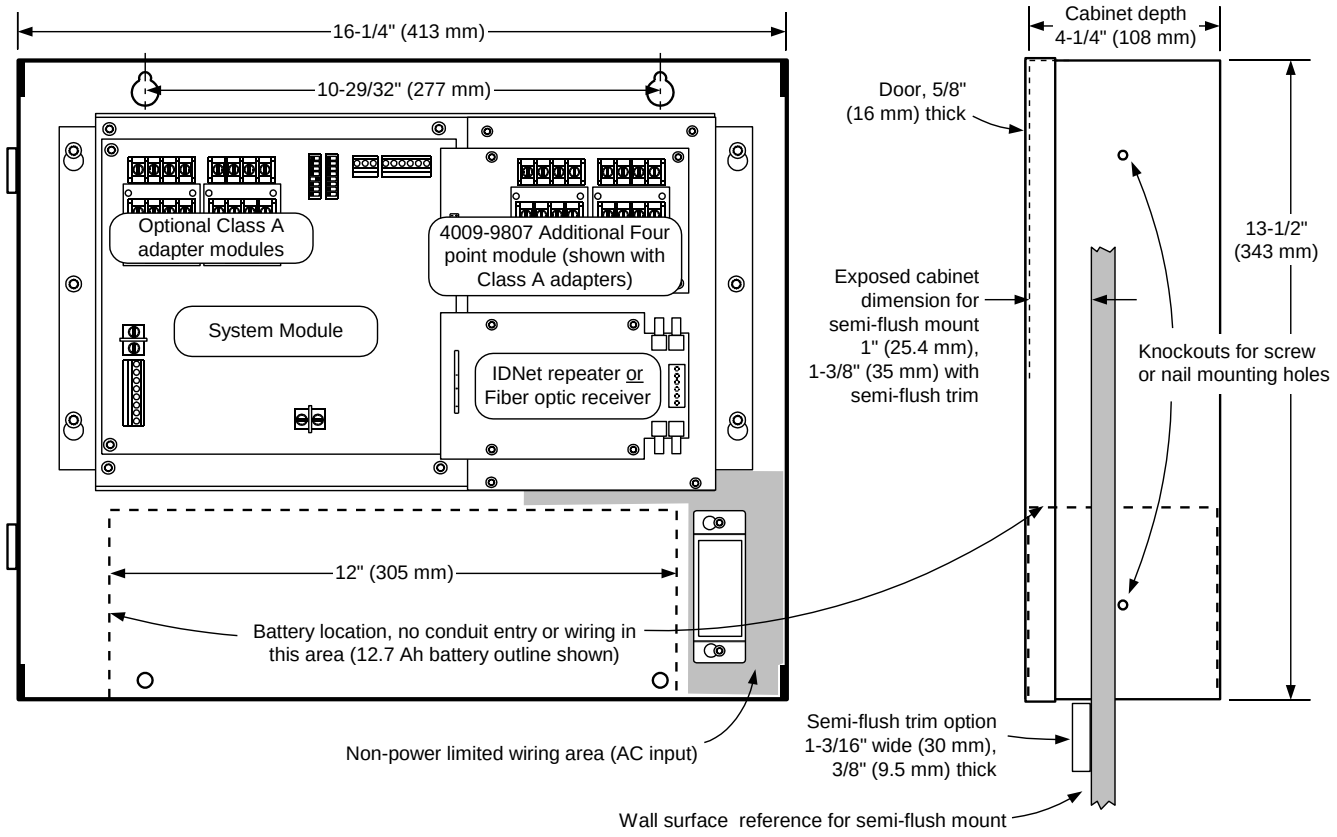
IDNet Repeater Module (4009-9809)	Input Power	70 mA @ 24 VDC, system supplied
	IDNet Input, One Address	Maximum distance from IDNet source is 2500 ft (762 m)
	IDNet Output Specifications	Repeated IDNet output for up to 100 devices (total IDNet devices not to exceed 250 per channel)
		Maximum distance to farthest device is 2500 ft (762 m)
		Total distance including “T-taps” is 10,000 ft (3048 m)
		Class A loop maximum distance is 2500 ft (762 m), no “T” taps
Fiber Optic Receiver Modules		
Input Current		4009-9810, Class B, 65 mA @ 24 VDC, system supplied
		4009-9811, Class X, 80 mA @ 24 VDC, system supplied
IDNet Output Specifications		Same as those for Repeater Module (see above)
Fiber Optic Transmission Distance		3000 ft (914 m) maximum
General (LED status indicators are listed on page 7, dimensions and mounting details are on page 6)		
Operating Temperature		32° to 120° F (0° to 49° C)
Operating Humidity Range		10% to 90% RH from 32° F to 104° F (0° C to 40° C)
Wiring Connections*		Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)

Fiber Optic Transmitter Specifications

Input Voltage	18.9-32 VDC from compatible listed fire alarm supply
Input Current	4090-9105, Class B, 30 mA @ 24 VDC
	4090-9107, Class X, 35 mA @ 24 VDC
Fiber Optic Connections and cable requirements	Multimode, graded index, 50/125µm, 62.5/125 µm, 100/40 µm, or 200 µm
	Type ST connectors
	4090-9105, Class B operation, two fiber cables required
	4090-9107, Class X operation, four fiber cables required
Module Size (with mounting bracket)	6-13/16” W x 3-3/4” H x 1-1/8” D (173 mm x 95 mm x 29 mm)
On-board Status Indicators	Green LED flashing = transmit
	Red LED flashing = receive
	Separate red LED on 4090-9107 = Class X receive
Communications	Simplex IDNet
Fiber Optic Transmission Distance	3000 ft (914 m) maximum
Wiring Connections*	Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)
Operating Humidity	10% to 90% RH from 32° to 104° F (0° to 40° C)
Operating Temperature	32° F to 120° F (0° to 49° C)

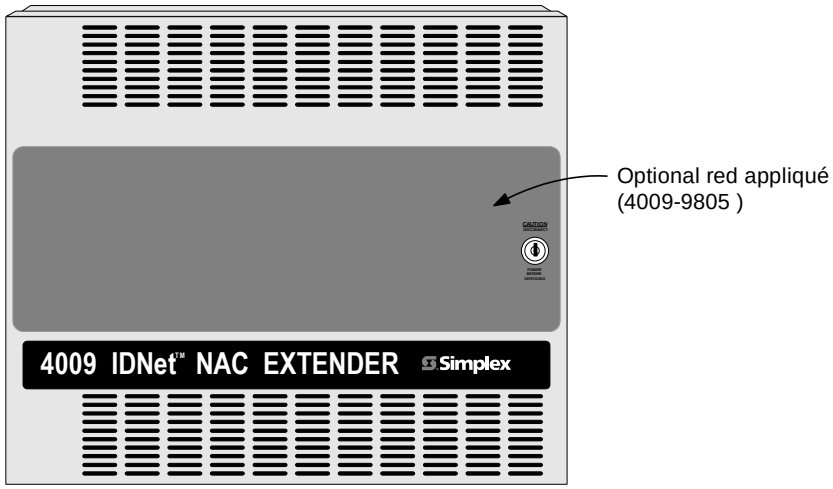
* Metric wire equivalents: 18 AWG = 0.82 mm^2; 12 AWG = 3.31 mm^2

4009 IDNet NAC Extender Mounting and Module Placement Information

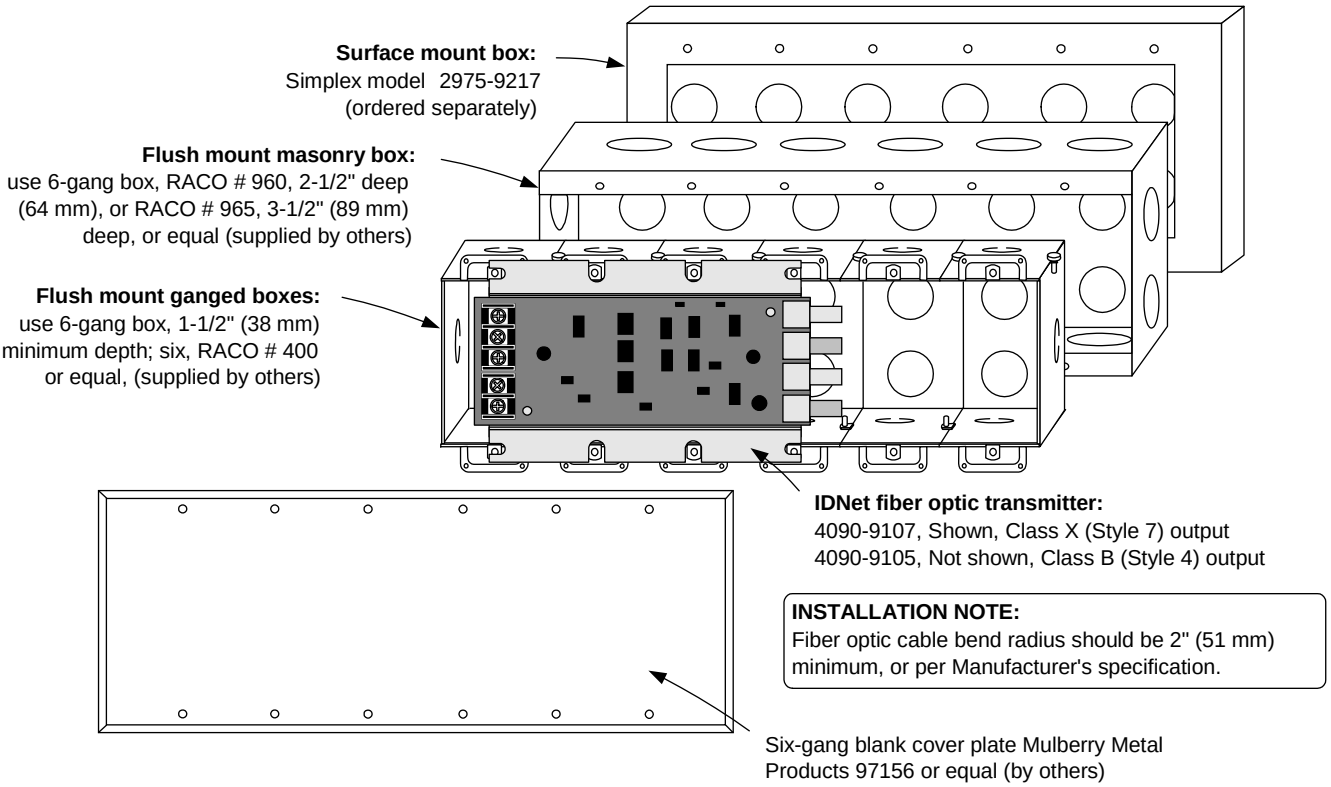


NOTE: Recommended conduit entrance varies with module selection. Refer to general installation instructions 574-181, specific module installation instructions, and to field wiring diagrams 842-068 before locating conduit entrance.

4009 IDNet NAC Extender Cabinet with Door Detail



4090-9105/9107 IDNet Fiber Optic Transmitter Mounting Information



Service Diagnostic Features

Power-up Self-Diagnostics. Upon power-up, the 4009 IDNet NAC Extender tests each module and performs earth fault diagnostics. Trouble conditions are communicated to the host control panel and are also displayed on diagnostic status LEDs in the 4009 IDNet NAC Extender. When connected via IDNet communications, detailed status information is available at the host. When controlled with conventional NAC inputs, common troubles are signaled by providing a polarized open circuit that disconnects the NAC wiring from its end-of-line resistor but still allows a reversed polarity alarm to be received.

Door Mounted Reference Label. The 4009 IDNet NAC Extender has a detailed programming and diagnostic label inside the front door that provides a quick reference for both installation and checkout.

LED Status Indicators are provided for the following:

- **Each NAC** (standard and optional) has a dedicated yellow LED that:
  - During supervision provides a slow flash to indicate a short circuit condition and a fast flash to indicate an open circuit
  - During an alarm, the LED follows the NAC output (on steady or flashing with coded output)
- **Four, general status yellow LEDs** provide nine separate indications listed in priority of urgency. As a trouble is eliminated, any remaining trouble(s) will then be indicated until the 4009 IDNet NAC Extender is returned to normal operation.
- **AC power status** is indicated by a green LED that is on when AC is normal. During low AC (brownout) conditions or with no AC, the LED is off. Additional power and battery status is indicated by the general status LEDs.

4009 IDNet NAC Extender Current Chart

Panel Module Selection (shaded model numbers are optional modules)

Model	Description		Supervisory Current	Actual Supervisory	Alarm Current	Actual Alarm
4009-9201	120 VAC input	Basic Panel	85 mA	85 mA	185 mA	185 mA
4009-9301	240 VAC input					
4009-9807	Additional Four Point NAC		40 mA	+	+ NAC loads (add below)	+ NAC loads (add below)
4009-9808	Dual Class A Adapter (current included in basic panel value)		–	–	–	–
4009-9809*	IDNet Repeater		70 mA	+	70 mA	+
4009-9810*†	Fiber Optic Receiver, Class B		65 mA		65 mA	
4009-9811*†	Fiber Optic Receiver, Class X		80 mA		80 mA	
IDNet Devices, 0.7 mA each, maximum of 100 (see note 5)			Total devices x 0.7 mA each	+	Total devices x 0.7 mA each	**(A1)** +
Auxiliary Power Output, calculate per total device requirements (see note 5)			500 mA maximum	+	500 mA maximum	**(A2)** +
			Total Supervisory Current =	**(A)** +		
					Total 4009 IDNet NAC Extender Panel Alarm Current =	**(B1)**

* Only one of these three modules can be chosen for a single 4009 IDNet NAC Extender.

† **NOTE:** IDNet Fiber Optic Transmitter current is supplied from the host fire alarm control panel.

NAC Loads

NAC Type	NAC Circuit #	NAC Alarm Current
Standard Panel NACS, 2 A maximum per NAC (see note 5)	Circuit 1	+
	Circuit 2	+
	Circuit 3	+
	Circuit 4	+
Optional Four Point NAC Module, 1.5 A maximum per NAC (see note 5)	Circuit 5	+
	Circuit 6	+
	Circuit 7	+
	Circuit 8	+
	Total NAC Loads Alarm Current =	**(C)**
	Total 4009 IDNet NAC Extender Panel Alarm Current (enter B1 from above) =	**(B2)** +
	Total Alarm Current =	**(D)**

Procedure:

1. Calculate total panel supervisory current (A).
2. Calculate total panel alarm current (B1) [convert mA to A, example: 350 mA = 0.35 A]. Copy (B1) into block (B2).
3. Calculate total NAC loads alarm current from notification appliance ratings (C).
4. Add (C) + (B2) to determine total alarm current (D).
5. Total of IDNet Device Current (A1) + Auxiliary Power Output Current (A2) + NAC Loads Alarm Current (C) is 8 A maximum.
6. Refer to Simplex battery selection document 900-012 for recommended battery size for specific standby requirements (i.e. 24 hours supervisory, 5 minutes of alarm). Internal cabinet space is provided for batteries up to 12.7 Ah.

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INSERT 4

FIRE ALARM NOTIFICATION APPLIANCES & ACCESSORIES

Simplex®

True*Alert*® Multi-Candela Notification Appliances

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

Visible Notification Appliances with Synchronized Flash; Non-Addressable, Smart*Sync*™ Operation Compatible

Features

Visible only (V/O) 24 VDC notification appliances with high output xenon strobe, available for wall or ceiling mount:

- Intensity is selectable as 15, 30, 75, or 110 candela with visible selection jumper secured behind strobe housing
- Operation is compatible with ADA requirements (refer to important installation information on page 3)
- Polarized input allows connection to compatible reverse polarity, supervised notification appliance circuit (NAC)
- Regulated circuit design ensures consistent flash output and provides controlled inrush current
- Rugged, high impact, flame retardant thermoplastic housings are available in red or white with clear lens
- Listed to UL 1971 and ULC S526

Strobes provide synchronized flash for use with:

- 4006, 4008, 4010, and 4100U Series fire alarm control panels with NACs selected to provide strobe synchronization or SmartSync two-wire control**
- 4009 IDNet™ NAC Extenders
- Separate strobe Synchronization Modules that are available for Class B or Class A operation
- Separate SmartSync Control Modules (SCMs) that provide Class B or Class A output from conventional NAC inputs

Strobe housings provides flexible, easy, and convenient semi-flush or surface wall mounting:

- Rear of housing does not extend into box
- Wall mount strobes easily mount to single gang, double gang, or 4-inch square outlet box
- Ceiling mount strobes mount to single gang boxes

Wall mount strobe features:

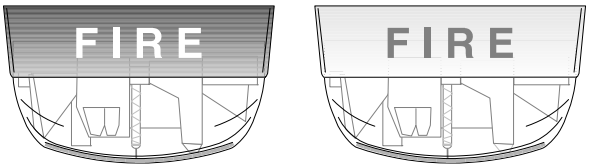
- Wiring terminals are accessible from the front of the housing providing easy access for installation, inspection, and testing
- Covers are available separately to convert housing color

Optional adapters and wire guards:

- Wall mount strobe adapters are available to cover surface mounted electrical boxes and to adapt to Simplex® 2975-9145 boxes
- UL listed red wire guards are available for wall or ceiling mount strobes*

* Refer to page 2 for guard listing. 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 7125-0026:316 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Refer to page 2 for listing status of wire guards. 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 Safety Products Westminster.

Wall Mount Strobes



Ceiling Mount Strobes

Description

Multi-Candela TrueAlert synchronized strobes provide convenient installation to standard electrical boxes. The enclosure designs are both impact and vandal resistant and provide a convenient strobe intensity selection. Since each model can be selected for intensity output, on-site model inventory is minimized and changes encountered during construction can be easily accommodated.

Wall mount strobe housings are a one-piece assembly (including lens) that mounts to a single or double gang, or 4" square standard electrical box. The cover can be quickly removed (a tool is required) and covers are available separately for color conversion.

Ceiling mount strobes install using standard single gang electrical boxes. Color choice is determined by model number.

Strobe Intensity Selection

During installation, a selection plug at the back of the housing determines the desired strobe intensity. An attached flag with black letters on a highly visible yellow background allows the selected intensity to be seen at the side of the strobe lens.

Strobe Application Reference

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).

** Simplex multi-candela SmartSync two-wire horn/strobe appliance operation is protected under one or more of the following U.S. Patent Numbers: 5,559,492; 5,622,427; 5,865,527; 5,886,620; 6,281,789; 6,954,137; 7,005,971; and 7,006,003.

Synchronized Strobes

Multiple Strobes. When multiple strobes and their reflections can be seen from one location, synchronized flashes reduce the probability of photo-sensitive reactions as well as the annoyance and possible distraction of random flashing. These multi-candela strobes are synchronized over a two-wire circuit when connected to compatible NACs, to compatible Synchronized Flash Modules, or to SmartSync Control Modules.

SmartSync Two-Wire Control

Some applications desire the audible notification appliances to be capable of being silenced before the alarm condition is reset (on-until-silenced) while the visible notification appliances are kept activated until the alarm condition is reset (on-until-reset). SmartSync operation mode provides this function using a single circuit (two-wire operation).

SmartSync Control Sources

SmartSync two-wire control is available from:

- 4006, 4008, 4100U, and 4010 Fire Alarm Control Panels (refer to individual product data sheets for more information)
- 4009 IDNet NAC Extenders (refer to data sheet S4009-0002)
- SmartSync Control Module (SCM) Model 4905-9938 (refer to data sheet S4905-0003)

Additional SmartSync compatible notification appliances include separate horns and combination horn/strobe notification appliances.

Product Selection

Multi-Candela Visible Notification Appliances (Strobes)

Model	Mounting	Housing Color	"FIRE" Lettering	Description
4906-9101	Wall	Red	White	Multi-candela strobe with intensity selectable as: 15, 30, 75, or 110 candela; synchronized flash rate; SmartSync two-wire control compatible
4906-9103		White	Red	
4906-9102	Ceiling	Red	White	
4906-9104		White	Red	

Wall Mount Strobe Adapters

Model	Description		Dimensions
4905-9937	Red	Surface Mount Adapter Skirt; use to cover 1-1/2" (38 mm) 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	White		
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 Adapter Plate 4905-9931		7-7/8" x 5-1/8" x 2-3/4" D (200 mm x 130 mm x 70 mm)

Ceiling Mount Strobe Adapter

Model	Description	Dimensions
4905-9910	Surface Mount Adapter Plate; zinc plated; **required for mounting to handy box; not needed when using 4905-9926 guard**	4-7/8" x 3-1/8" x 0.060" D (124 mm x 79 mm x 1.5)

Synchronization Modules (refer to data sheet S4905-0003 for additional information)

Model	Description		Dimensions
4905-9914	Class B	Synchronized Flash Module; epoxy encapsulated with in/out 18 AWG (0.82 mm^2) wire leads, rated for 2 A NAC, requires 5 mA for power	1-3/8" x 2-7/16" x 13/16" (35 mm x 62 mm x 20 mm)
4905-9922	Class A		
4905-9938	SmartSync Control Module with Class B or Class A output; mounts in 4" (102 mm) square box		4" x 4-1/8" x 1-1/4" D (102 mm x 105 mm x 32 mm)

Replacement Covers and Guards

Model	Description		Dimensions
4905-9992	Red cover with white "FIRE" lettering	For Wall mount strobes	5-1/8" H x 5" W x 1-1/2" D (130 mm x 127 mm x 38 mm)
4905-9993	White cover with red "FIRE" lettering		
4905-9961*	Wall mount	Red wire guard with mounting plate, compatible with semi-flush or surface mounted boxes	6-1/16" H x 6-1/16" W x 3-1/8" D (154 mm x 154 mm x 79 mm)
4905-9926*	Ceiling mount		6-1/8" x 4-3/8" x 2-7/8" deep (156 mm x 111 mm x 73 mm)

* UL listed by Space Age Electronics Inc.

Strobe Specifications

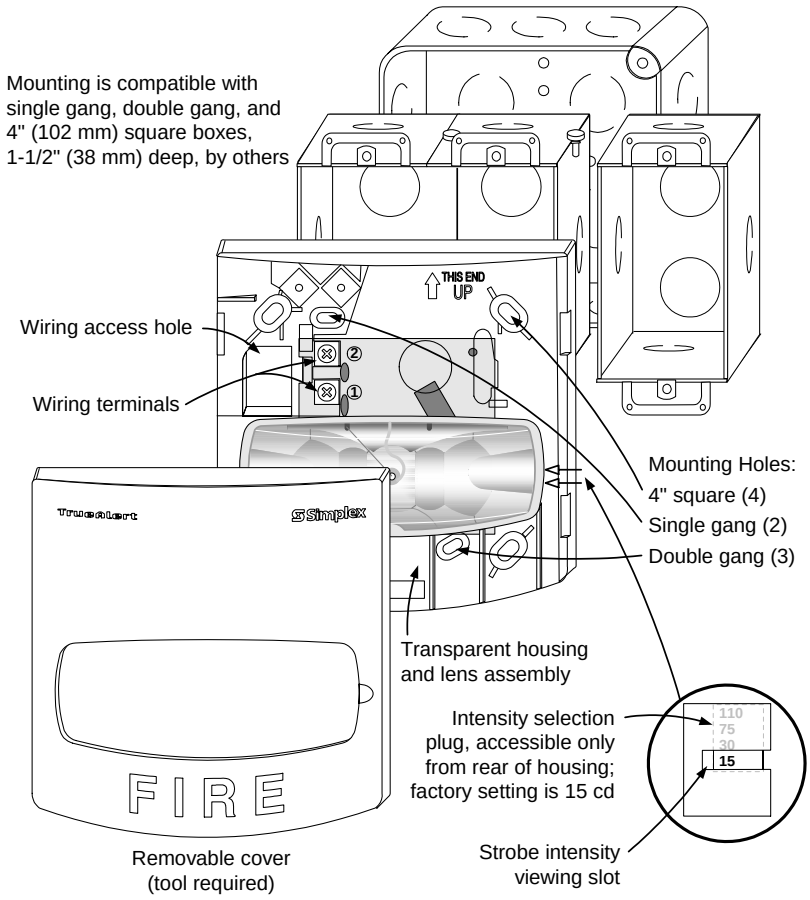
Wall Mount or Ceiling Mount, Common Specifications

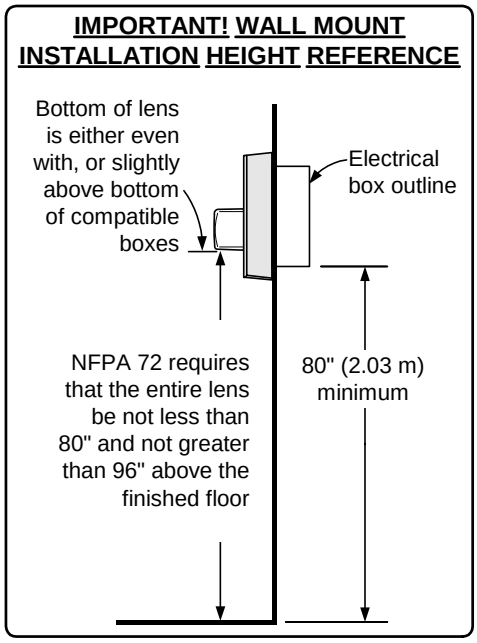
Rated Voltage Range			Regulated 24 VDC; see Note 1 below			
Flash Rate			1 Hz			
Synchronized NAC Loading			Up to 35 synchronized strobes maximum per NAC			
Temperature Range			32° to 122° F (0° to 50° C)			
Humidity Range			10% to 93%, non-condensing at 100° F (38° C)			
Connections			Terminal blocks for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires per terminal for in/out wiring			
Wall Mount	Housing Dimensions (with lens)		5-1/8" H x 5" W x 2-3/4" D (130 mm x 127 mm x 70 mm)			
	Maximum RMS Current Rating per Strobe Setting (see Note 2 below)		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			60 mA	**94 mA**	**186 mA**	**252 mA**
	Reference RMS Currents at other voltages	18 VDC	53 mA	84 mA	165 mA	224 mA
		24 VDC	40 mA	63 mA	124 mA	168 mA
Ceiling Mount	Housing Dimensions (with lens)		4-3/4" L x 2-5/16" W x 2-5/8" D (121 mm x 75 mm x 67 mm)			
	Maximum RMS Current Rating per Strobe Setting (see Note 2 below)		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			75 mA	**125 mA**	**233 mA**	**316 mA**
	Reference RMS Currents at other voltages	18 VDC	67 mA	111 mA	207 mA	281 mA
		24 VDC	50 mA	83 mA	155 mA	211 mA

NOTES:

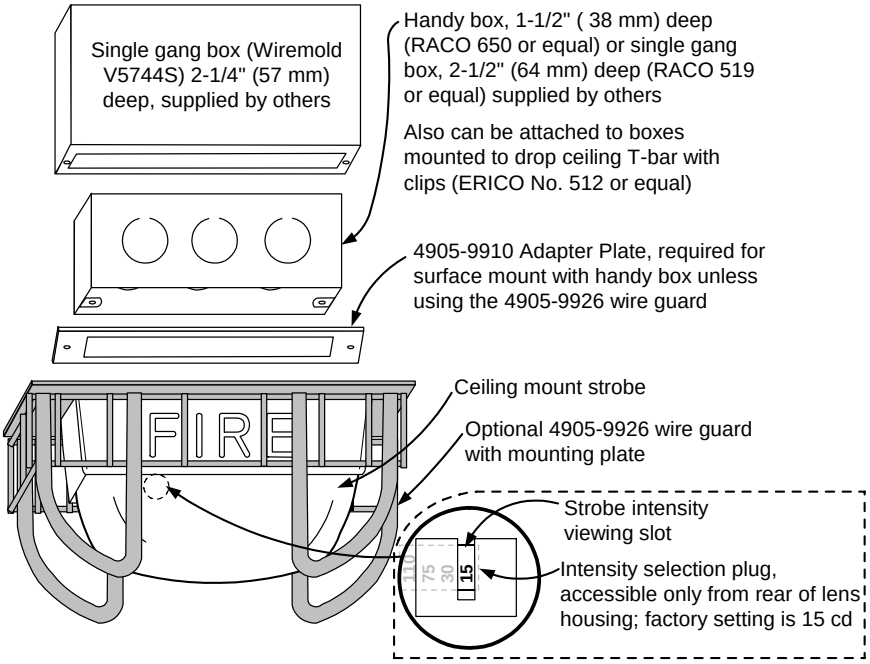
1. "Regulated 24 VDC" refers to the voltage range of 16 to 33 VDC per UL Standard 1971, *Signaling Devices for the Hearing Impaired*, changes effective May 1, 2004. This voltage range is the absolute operating range. Operation outside of this range may cause permanent damage to the strobe. Please note that 16 VDC is the lowest operating voltage that is allowed at the last appliance on the NAC under worst case conditions.
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.)

Installation Reference, Surface or Semi-Flush Wall Mounting

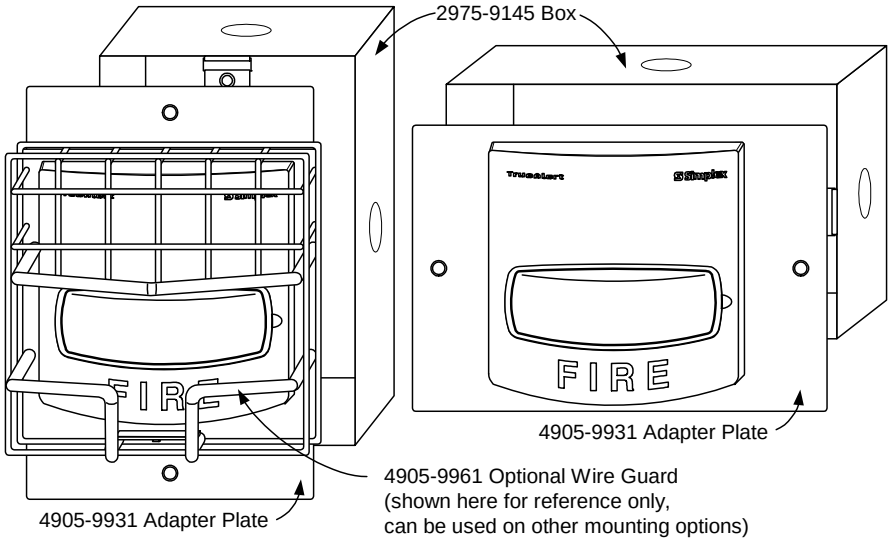




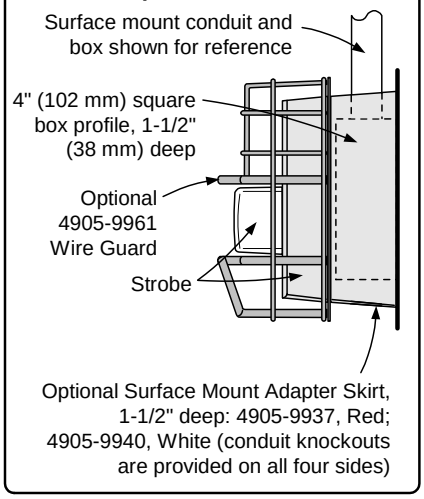
Ceiling Mount Strobe Installation Reference



Wall Mount Installation Reference; Adapter Plate, Guard, and Adapter Skirt



Surface Mounting Reference with Optional Adapter Skirt and Optional Wire Guard



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Simplex

True*Alert*® Multi-Candela Notification Appliances

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

Smart*Sync*™ Operation Audible/Visible Notification
with Horn and Synchronized Flash, Non-Addressable

Features

Audible/visible (A/V) notification appliances with efficient electronic horn and high output xenon strobe, available for wall or ceiling mount:

- Operation is compatible with ADA requirements (refer to important installation information on page 3)
- Rugged, high impact, flame retardant thermoplastic housings are available in red or white with clear lens

Operates over a two-wire SmartSync circuit to provide:

- Horns that are controlled separately from strobes on the same two-wire circuit
- "On-until-silenced" and "on-until-reset" operation on the same two-wire pair
- SmartSync horn activation of Temporal pattern, March Time pattern (at 60 BPM), or on continuously
- Strobe appliances on the same circuit operating at a synchronized 1 Hz flash rate
- Operation requires connection to a compatible SmartSync operation NAC or to SmartSync Control Module (SCM) 4905-9938

Wall mount A/Vs features:

- Wiring terminals are accessible from the front of the housing providing easy access for installation, inspection, and testing
- Covers are available separately to convert housing color
- Optional UL/ULC listed sound damper for locations requiring attenuation of 5 to 6 dBA (stairwells, small rooms, highly reverberant areas, etc.)

Optional adapters and wire guards:

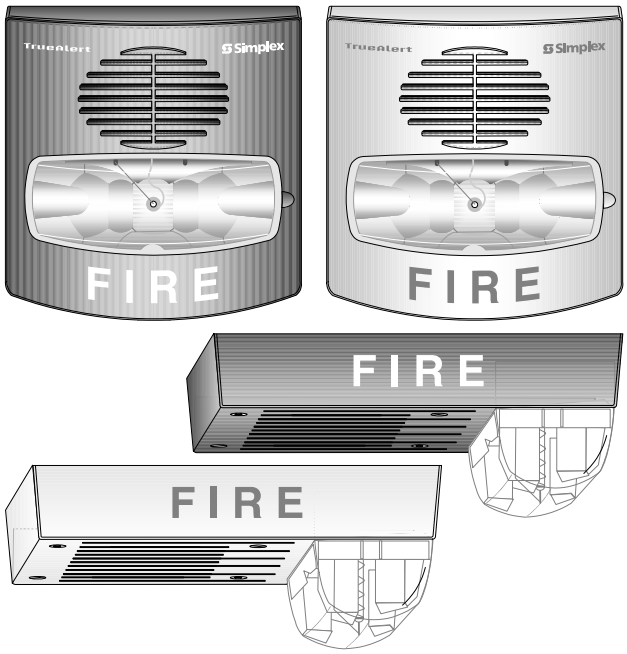
- Wall mount A/V adapters are available to cover surface mounted electrical boxes and to adapt to Simplex® 2975-9145 boxes
- UL listed red wire guards are available for wall or ceiling mount A/Vs*

Visible notification appliance (strobe):

- 24 VDC xenon strobe; intensity is selectable as 15, 30, 75, or 110 candela with visible selection jumper secured behind strobe housing
- Regulated circuit design ensures consistent flash output and provides controlled inrush current
- Listed to UL 1971 and ULC S526

Audible notification appliance (horn):

- Low current, 24 VDC electronic horn with harmonically rich sound output suitable for either steady or coded operation (Temporal or 60 BPM March Time pattern)
- Listed to UL 464 and ULC S525



Wall and Ceiling Mount A/Vs

Description

Multi-Candela TrueAlert A/Vs with horn and synchronized strobe provide convenient installation to standard electrical boxes. The enclosure designs are both impact and vandal resistant and provide a convenient strobe intensity selection. Since each model can be selected for strobe intensity output, on-site model inventory is minimized and changes encountered during construction can be easily accommodated.

Wall mount A/V housings are a one-piece assembly (including lens) that mounts to a single or double gang, or 4" square standard electrical box. The cover can be quickly removed (a tool is required) and covers are available separately for color conversion.

Ceiling mount A/Vs install using standard 4" electrical boxes. Color choice is determined by model number.

Strobe Intensity Selection

During installation, a selection plug at the back of the housing determines the desired strobe intensity. An attached flag with black letters on a highly visible yellow background allows the selected intensity to be seen at the side of the strobe lens.

* Refer to page 2 for guard listing. 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 7125-0026:317 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Refer to page 2 for listing status of wire guards. 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 Safety Products Westminster.

** Simplex multi-candela SmartSync two-wire horn/strobe appliance operation is protected under one or more of the following U.S. Patent Numbers: 5,559,492; 5,622,427; 5,865,527; 5,886,620; 6,281,789; 6,954,137; 7,005,971; and 7,006,003.

Strobe Application 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).

Synchronized Strobes

Multiple Strobes. When multiple strobes and their reflections can be seen from one location, synchronized flashes reduce the probability of photo-sensitive reactions as well as the annoyance and possible distraction of random flashing. The multi-candela strobes of these A/Vs are synchronized by the controlling SmartSync operation NAC.

SmartSync Two-Wire Control

SmartSync operation mode allows a two-wire circuit to provide the ability to activate both the horn and strobe on the same NAC and then allow the horn to be silenced while the strobe remains flashing. The horn operates as "on-until-silenced" while the strobe operation is "on-until-reset."

SmartSync Control Sources

- 4006, 4008, 4100U, and 4010 Fire Alarm Control Panels (refer to individual product data sheets for more information)
- 4009 IDNet NAC Extender (refer to data sheet S4009-0002)
- SmartSync Control Module (SCM) 4905-9938 (refer to data sheet S4905-0003)

Additional SmartSync compatible notification appliances include separate horns and combination horn/strobe notification appliances.

Product Selection

Multi-Candela A/Vs

Model	Mounting	Housing Color	"FIRE" Lettering	Description
4906-9127	Wall	Red	White	Horn with Multi-Candela Strobe; strobe intensity selectable as: 15, 30, 75, or 110 candela; operates with SmartSync two-wire control
4906-9129		White	Red	
4906-9128	Ceiling	Red	White	
4906-9130		White	Red	

Wall Mount A/V Accessories

Model	Description		Dimensions
4905-9937	Red	Surface Mount Adapter Skirt; use to cover 1-1/2" (38 mm) 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) depth with strobe = 4-3/8" (111 mm)
4905-9940	White		
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 Adapter Plate 4905-9931		7-7/8" x 5-1/8" x 2-3/4" D (200 mm x 130 mm x 70 mm)
4905-9838	Optional Sound Damper; package of 20; field installed adhesive backed horn output attenuator; reduces output 5 to 6 dBA **NOTE:** After Sound Damper installation, measure sound level to ensure compliance with applicable code requirements		1-3/4" Diameter (44.5 mm) with 0.31" (8 mm) sound opening

SmartSync Control Module

Model	Description	Dimensions
4905-9938	SmartSync Control Module with Class B or Class A output; mounts in 4" (102 mm) square box; refer to data sheet S4905-0003 for details	4" x 4-1/8" x 1-1/4" D (102 mm x 105 mm x 32 mm)

Replacement Covers for Wall Mount A/Vs

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	

Wire Guards and Ceiling Mount A/V Adapter

Model	Description			Dimensions
4905-9961*	Wall mount red wire guard with mounting plate, compatible with semi-flush or surface mounted boxes			6-1/16" H x 6-1/16" W x 3-1/8" D (154 mm x 154 mm x 79 mm)
4905-9927*	Ceiling Mount	Red Wire Guard for mounting to flush mounted electrical box		8-1/2" x 6-1/8" x 3" (216 mm x 156 mm x 76 mm)
4905-9928*		Red Adapter Plate, required to mount guard to surface mounted electrical box		9" x 7" (229 mm x 178 mm)
4905-9915		White	Surface Mount Adapter Box Extension, use to cover 1-1/2" deep surface mounted boxes	4-3/4" x 6-7/8" x 1-1/2" deep, (121 mm x 175 mm x 38 mm)
4905-9916		Red		

* UL listed by Space Age Electronics Inc.

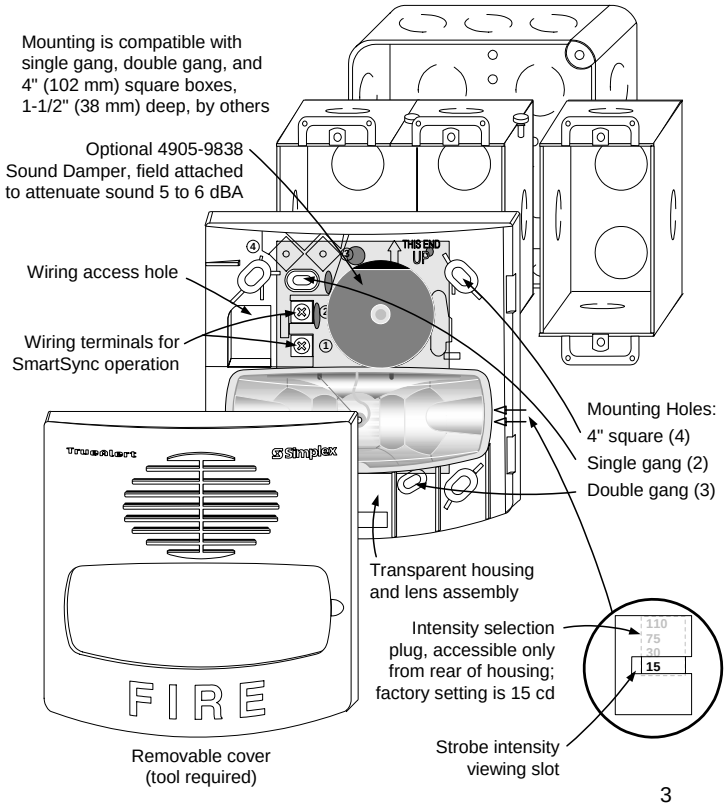
A/V Specifications

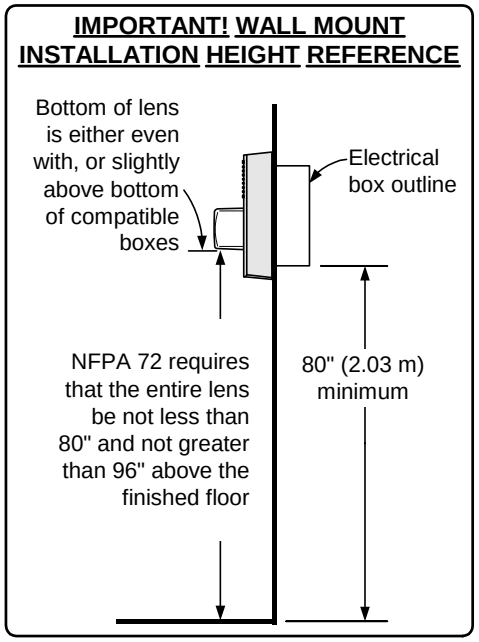
Wall Mount or Ceiling Mount, Common Specifications						
Rated Voltage Range			Regulated 24 DC; see Note 1 below			
Flash Rate and Synchronized NAC Loading			1 Hz; with up to 35 synchronized strobes maximum per NAC			
Environmental; Temperature and Humidity			32° to 122° F (0° to 50° C); 10% to 93%, 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			
Horn Output Characteristics			2400 to 3700 Hz sweep, modulated at 120 Hz rate			
Horn Output Ratings (see Note 2 for polar dispersion reference)		Model Type	**Wall Mount**		**Ceiling Mount**	
		Sound Type (see Note 2)	**Steady**	**Coded**	**Steady**	**Coded**
		Reverberant Chamber Test, per UL 464 @ 10 ft (~3 m)	86 dBA	82 dBA	87 dBA	83 dBA
		Anechoic Chamber Test, per ULC S525 @ 3 m (~10 ft)	88 dBA	94 dBA	90 dBA	98 dBA
Wall Mount	Housing Dimensions (with lens)		5-1/8" H x 5" W x 2-3/4" D (130 mm x 127 mm x 70 mm)			
	Maximum RMS Current Rating per Strobe Setting (see Note 3 below)		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			75 mA	**116 mA**	**221 mA**	**285 mA**
	Reference RMS Currents at other voltages	18 VDC	67 mA	103 mA	196 mA	253 mA
		24 VDC	50 mA	77 mA	147 mA	190 mA
Ceiling Mount	Housing Dimensions (with lens)		4-3/4 L" x 6-7/8" W x 2-5/8" D (121 mm x 175 mm x 67 mm)			
	Maximum RMS Current Rating per Strobe Setting (see Note 3 below)		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			86 mA	**132 mA**	**250 mA**	**320 mA**
	Reference RMS Currents at other voltages	18 VDC	76 mA	117 mA	222 mA	284 mA
		24 VDC	57 mA	88 mA	167 mA	213 mA

NOTES:

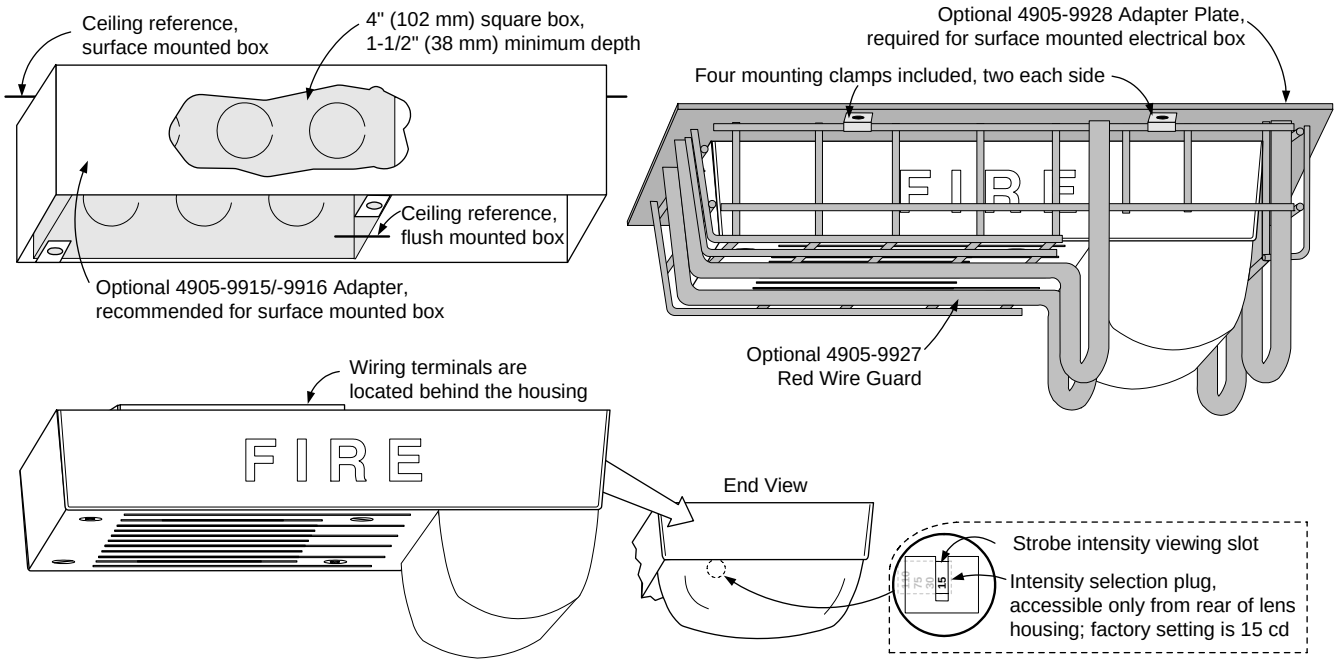
1. "Regulated 24 DC" refers to the voltage range of 16 to 33 VDC per UL Standard 1971, *Signaling Devices for the Hearing Impaired*, changes effective May 1, 2004. This voltage range is the absolute operating range. Operation outside of this range may cause permanent damage to the appliance. Please note that 16 VDC is the lowest operating voltage that is allowed at the last appliance on the NAC under worst case conditions.
2. 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. Polar dispersion per ULC S525 testing = -3 dBA at +/-40° off-axis; -6 dBA at +/- 50° off-axis.
3. Currents are with horn on steady. 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.)

Installation Reference, Surface or Semi-Flush Mounting

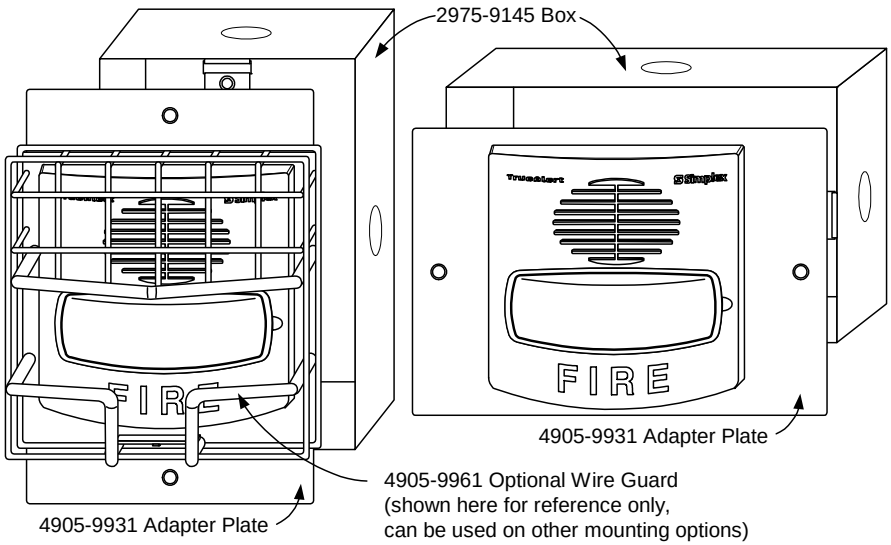




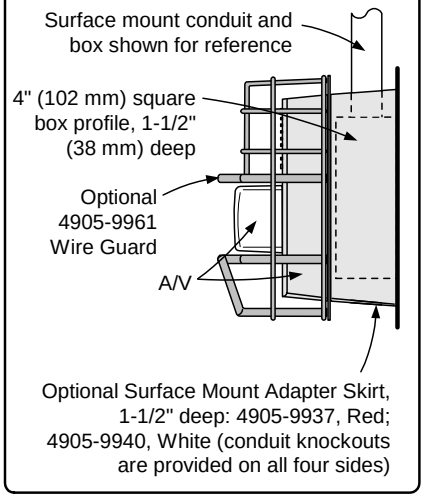
Ceiling Mount A/V and Guard Installation Reference



Wall Mount Installation Reference; Adapter Plate, Guard, and Adapter Skirt



Surface Mounting Reference with Optional Adapter Skirt and Optional Wire Guard



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INSERT 5

APARTMENT INTERCOM CONTROL PANEL & ACCESSORIES

Tek-ENTRY® Vandal Resistant Apartment Entry Panels Specification Sheet

IL500
Section A
Rev. 9 - 08/2010

CM492/024
OF192 Frame and
AM190D Directory

CM491/016
OF291 Frame

ARCHITECTS' AND ENGINEERS' SPECIFICATION

The entrance panel shall be TekTone®'s vandal resistant CM491 series or CM492 series. CM492 shall contain as many engraved plungers as there are apartments or areas to be called. CM491 shall contain 4, 8, 12, 16 or 20 engraved plungers. Directory panels shall be supplied to accommodate an equivalent number of tenant names.

The panel shall include a weather resistant Mylar speaker mounted behind a louvered grill and perforated aluminum material to protect the speaker from damage. Push button switches shall be individually replaceable with self-wiping contacts. Push button actuators shall be made of solid, extruded aluminum suitable for engraving.

All mounting screws shall be tamper resistant. The panel shall be flush or surface mounted and shall be finished in brushed aluminum.

FEATURES

The CM492 series vandal resistant apartment entry panels are modular so that adding additional button panels (if required), directory panels, frame and housing will comprise a complete entrance panel. The CM491 series vandal resistant apartment entry panel is available with 4, 8, 12, 16 or 20 buttons and includes an integral directory. Panels are equipped with a Mylar voice-frequency response speaker protected by a louvered grill and perforated aluminum material. The aluminum push button actuators may be engraved with up to four letter/digit combinations.

- Vandal resistant panel and push button actuators
- Weather resistant Mylar speaker
- Fully enclosed back box with knockouts
- Hands-free loudspeaker (or optional handset)
- Engraveable solid aluminum and push button actuators
- Vandal resistant Lexan® directories*
- Slim-line surface mount frame option
- Tamper resistant mounting screws

SPECIFICATIONS

Dimensions:	Height:	16.5" (418 mm)
	Width:	4" (100 mm)
Speaker:	2.5" (63.5 mm) Mylar	
Construction:	Modular extruded anodized aluminum	
Flush Mount:	CM491	OF291 frame, OH191 housing
	CM492	OF190 series frame, OH190 series housing
Surface Mount:	CM491	OF291S frame
	CM492	OF190S series frame
Plungers:	Engraved extruded aluminum	
Push Button:	Individually replaceable with self-wiping contacts	

COMPONENTS

AM190D	Directory Panel
IR series	Speaker-type Remote Stations
PK543/A	Amplifier
RP055EN	Apartment Number Button Engraving
SS Series	Transformer
OF/OH Series	Frame & Housing

*Note: Lexan® is a Registered Trademark of General Electric Corporation.

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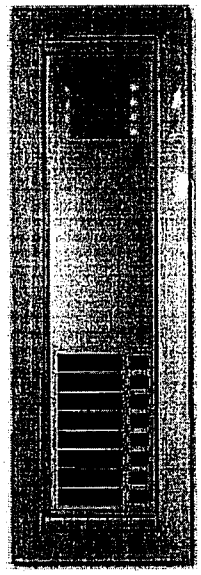
Tek-ENTRY® AM492 Vandal Resistant Apartment Intercom System Specification Sheet

IL462
Section A
Rev. 11 - 08/2010



AM492 Series Entrance Panel
shown with OF191 frame

ARCHITECTS' AND ENGINEERS' SPECIFICATION

The apartment intercom system entrance panel shall be TekTone® AM492 Vandal Resistant Series or approved equal, and shall provide for up to 18 push buttons per speaker panel.

The panel shall include a weather-resistant Mylar speaker mounted behind a louvered panel and perforated aluminum material to protect the speaker from damage. Push button switches shall be individually replaceable type with self-wiping contacts. Push button actuators shall be made of solid, extruded aluminum. In addition, the panel shall contain up to 18 individual name holders. The name holders shall be made of black flame-retardant polycarbonate plastic with clear flame retardant polycarbonate plastic strips to protect card inserts. Each name holder shall snap into two small slots on the panel itself and shall be individually replaceable.

The panel shall be flush or surface mounted and shall be finished in brushed aluminum.

FEATURES

The AM492 Series Vandal Resistant Apartment Intercom System Entrance Panel is a modular series for use with TekTone® apartment intercom stations. Panels are equipped with a Mylar, voice-frequency response speaker protected by a louvered panel and perforated aluminum material. The speaker panel can accommodate up to 18 push buttons. For more than 18 apartments, the AM492 is used with the AM490/12 or AM490/22 push button add-on panel.

Pressing the button corresponding to the desired name and apartment number causes a buzzing at the apartment station. The resident may then converse with the caller. Controlled entry is permitted by push button operation of the electric door release. AM492 panels with 0–10 buttons are available with postal option.

- Vandal resistant panel and push button actuators
- Weather-resistant Mylar speaker
- Fully-enclosed back box with knockouts
- Modular design
- Hands-free loudspeaking
- Individually replaceable name holders (black flame retardant polycarbonate plastic)
- Self-wiping push button switches
- Slim-line surface mount option

SPECIFICATIONS

Dimensions:	Height:	16.5"	(419 mm)
	Width:	4"	(102 mm) each panel
Speaker:		2.5"	(64 mm) Mylar
Push Button:	Individually replaceable with self-wiping contacts.		
Construction:	Modular extruded, anodized aluminum panel and push button actuators.		
Housings:	OH190 Series for flush mounting. OF190S Series frame for surface mounting.		

REQUIRED COMPONENTS

IR Series	Apartment Intercom Stations
OF Series	Frames
OH Series	Housings
PK543A	Amplifier
SS Series	Transformers

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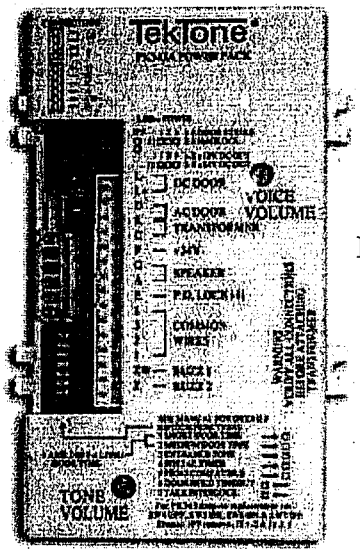
PK543A Apartment Intercom Amplifier for 5-, 4- & 3-Wire Remote Stations Specification Sheet

IL482
Section A
Rev. 12 - 08/2010



PK543A

ARCHITECTS' AND ENGINEERS' SPECIFICATION

The intercom amplifier shall be PK543A or approved equal, and shall provide the amplification, control and power circuits needed to operate the entire intercom system. The amplifier shall feature integrated circuit amplification, integrated circuit tone oscillator (supporting steady and warble tone modes). User access to the voice volume control and call tone volume control shall be provided for field adjustment.

Unit shall also provide for AC, DC or Maglock (12 VDC/ 24 VDC) door release with three selectable delayed door timing modes and support for postal lock door access control. Steady and warble tone options shall be available to provide identification of call source from entrance panel or suite call button. Unit shall include power LED and selectable options to provide door button hold timeout and talk interlock (talk button must be pressed before door button is pressed—available for 4-wire stations only). A specific function connector shall be provided to facilitate connection to devices that provide multiple entrance panel functionality. Low voltage wiring shall be used and plug-in type terminals shall be provided for installation wiring.

FEATURES

The PK543A Apartment Intercom Amplifier is a self-contained unit that does not require an external amplifier. The PK543A is designed for use with 3-, 4- or 5-wire apartment remote stations and provides amplification, control and power circuits needed to operate a complete apartment intercom system. Voice volume control and tone volume control are easily adjustable through the screwdriver opening on the front panel.

Additional functions include multiple door entrance operation with the PK502B; AC, DC or Maglock configurations with three selectable delayed door timing modes; post office door lock release; steady or warble call tones; power LED; selectable door button hold timeout; and selectable talk before door interlock (available for 4-wire stations only).

SPECIFICATIONS

Dimensions:	Height:	5.5"	(140 mm)
	Width:	3.125"	(80 mm)
	Depth:	2"	(51 mm)
Construction:	Flame-retardant (UL® 94V-0) plastic		
Amplification:	Integrated Circuit amplifier including amplifier with frequency response, adjusted for ideal voice quality.		
Call Tone:	Integrated circuit oscillator with steady and warble modes		
Door Release:	AC, DC or Maglock (12 VDC/24 VDC)		
Controls:	Voice Volume, Tone Volume and Dipswitches for selectable modes		
Connections:	Polarized plug-in type		
Power Required:	16 VAC, 10 VA		
Mounting:	Surface mount		

REQUIRED COMPONENTS

AM or CM series	Entrance Panels
IR Series	Remote Stations
SS Series	Transformers

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Installation Instructions for PK502B

Dual Entrance Control Unit

IL499
Section A
Rev. 18 - 08/2011

APPLICATION

The TekTone® PK502B Dual Entrance Control Unit provides a means to connect TekTone® Apartment Intercom amplifiers to more than one entrance. Voice and door release functions are automatically transferred to the calling entrance. The quantity of PK502Bs needed is equal to one less than the number of entrances.

PROCEDURE

Warning: This switching unit will not function unless programmed for use—see Test Step #1.

1. Determine equipment location.
2. Install wiring.
3. Install equipment.
4. Check wiring and make connections.
5. Apply power and check operation.

EQUIPMENT LOCATION

Locate the PK502B within 3' (1 m) of the intercom amplifier. If more than one PK502B is used, install them all in the same area. Keep the PK502B away from direct heat or extreme cold. Operating temperature should be between 10°F and 90°F.

WIRING

1. The first PK502B will support two entrances; each additional PK502B will support one additional entrance. For example, a three-entrance system will have two PK502Bs. See *Figure 2* for an example with additional entrances.
2. Wire the suite station common wires to the amplifier, and wire the power transformer according to instructions supplied with the amplifier.
3. If more than one PK502B is used, run 1 cond. #18 plus 7 cond. #22 between PK502Bs. Run 3 cond. #18 plus 3 cond. #22 from the last PK502B to the amplifier.
4. Run 2 cond. #22 twisted shielded (2 cond. #22, plus 2 cond. #22 shielded for PK205 amplifiers) from each entrance panel to the associated PK502B.
5. Run multi-cond. #22 cable (use 1 cond. per suite station) from entrance panel to entrance panel, and from one entrance panel to the suite stations, as required by instructions supplied with amplifier.
6. From each entrance door release, run 1 cond. #18 to the PK502B and 1 cond. #18 to the amplifier.
7. If a Post Office (P.O.) lock adapter is used, run 1 cond. #18 to the amplifier, and 1 cond. #18 to the associated door release from the P.O. lock adapter. In the wiring diagram, the P.O. lock adapter is shown connected to door release #1, but it may be connected to whichever door release is required.

CONNECTIONS

1. Make connections as shown on the wiring diagram for the amplifier being used. (For PK543/A amplifier, refer to *Figures 1, 2 and 3*. For PK205 amplifier, refer to *Figures 4 and 5*.) If more than two PK502Bs are used, break the connections going from the PK502Bs outside the dashed lines to the amplifier and insert the wiring shown inside the dashed lines for any additional PK502Bs.
2. If a P.O. lock adapter is used, do not connect it until a P.O. lock is obtained from the post office. When ready, make connections as shown on the appropriate wiring diagram.
3. Connect transformer to power source and follow the test procedures in the next section.

TEST

After performing the test required in the amplifier's instructions, do the following:

1. The PK502B must be programmed to operate with the amplifier being used. Locate the programming switch and set switches as follows.

   To use a PK543/A or PK205 amplifier, set switches 2 and 4 ***on*** and switches 1, 3 and 5 ***off***. Failure to set the programming switches properly will result in faulty operation, but will not cause permanent damage to the PK502B.
2. Perform tests required in the amplifier's instructions, then at each entrance, press a call button and observe the following:
   a. The buzz tone should be heard at the called suite station.

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b. If the Entrance Tone is enabled at the amplifier, then the buzz tone should be heard at the entrance panel.

c. Voice communication should be possible with the called suite station.

d. If the door button is pressed at the suite station, the door release should operate. When the door release time has passed, the PK502B's red test light should be ***off***.

3. If the P.O. lock adapter is installed, it may be tested by using a postal service key, or by operating the P.O. lock adapter micro switch if a key is unavailable. The door time delay on the amplifier does not affect the P.O. lock adapter.

TROUBLESHOOTING

If the system fails to operate properly, check all wiring. If the wiring is correct, check the troubleshooting points on the amplifier installation instructions. Then check the following:

No buzz:

Check wiring to terminal Z1 and Z2. If more than one PK502B is used, then the entrance #2 buzz wire must connect to all PK502B's.

No voice communication:

Check wiring to terminals S0, S1, S2, M0, M1 and M2.

No door release:

Check wiring to terminals D0, D1 and D2.

The PK502B has a built-in test circuit. This step should normally be unnecessary, but to test the PK502B do the following:

1. Set all programming switches ***off***.
2. The red test light, located behind the wiring connector, should be ***off***. If it is ***on***, wait 3 minutes for time out, and it should be ***off***.
3. Set programming switch #1 ***on***. The red test light should be ***on***.
4. Set programming switch #2 ***on***. The red test light should be ***off***. In a quiet location, a click may be heard as the internal relay operates.
5. Set all programming switches ***off***. The red test light should remain on for about 2 minutes. It is not necessary to wait for it to go ***off*** unless busy light trouble is encountered.
6. Reset programming switches to the desired amplifier setting as shown in *step 1 of the Test Section.* Failure to set the programming switches properly will result in faulty operation.

If the test circuit fails this procedure, replace the PK502B.

Figure 1—PK502B Wiring Diagram for the PK543/A and 2 Entrances

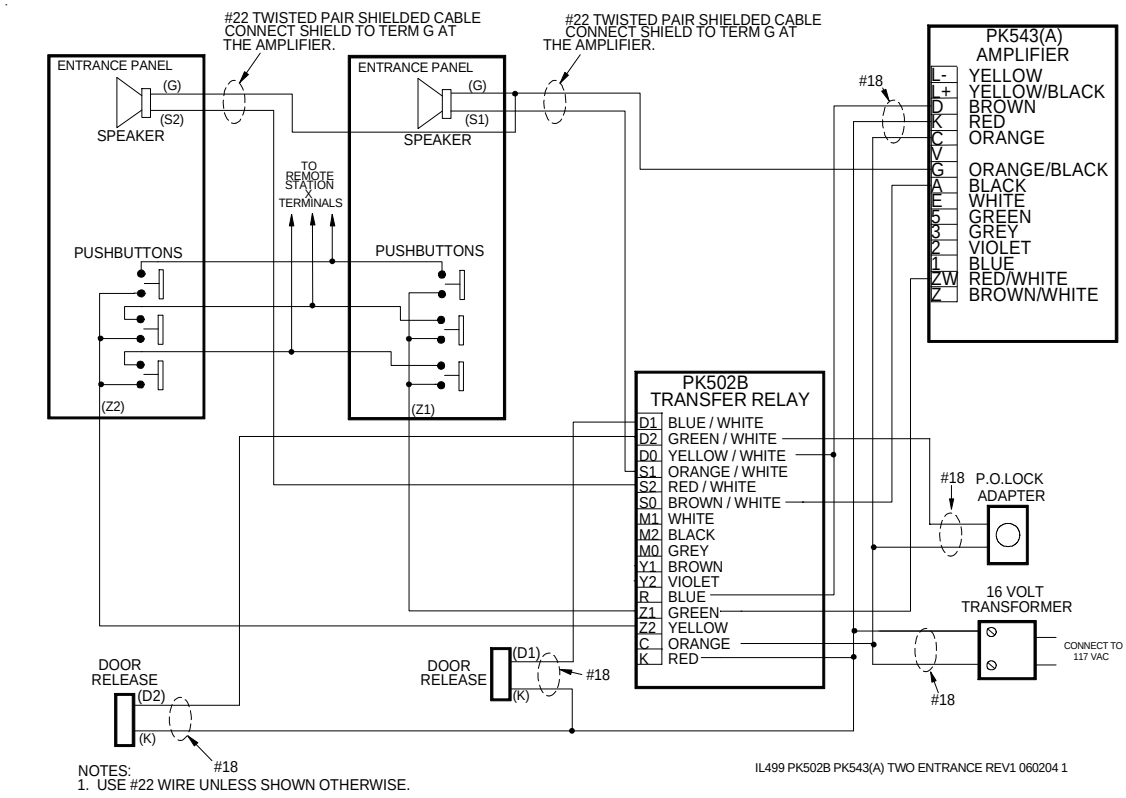

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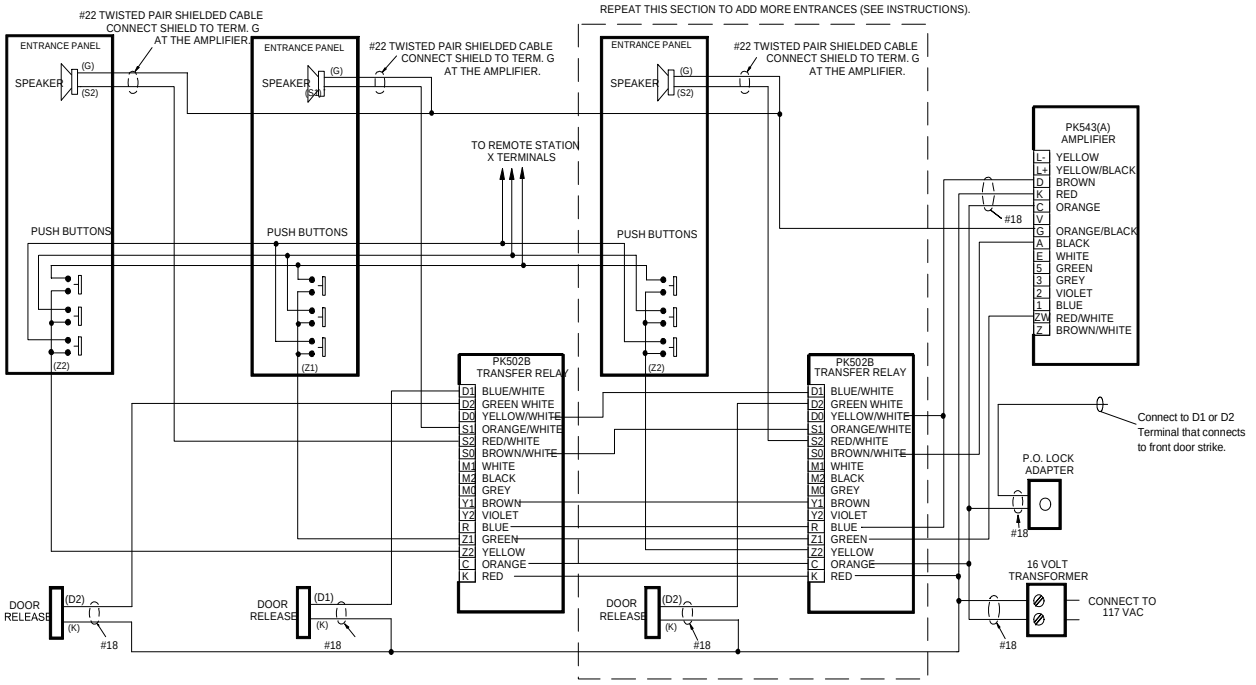
Figure 2—PK502B Wiring Diagram for the PK543/A and 3 to 8 Entrances

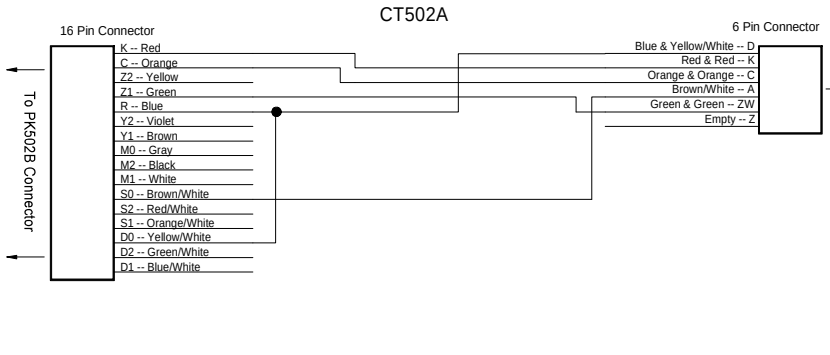


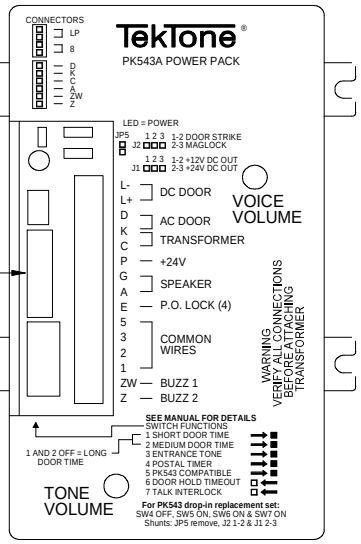
NOTES:1. USE #22 WIRE UNLESS SHOWN OTHERWISE.

IL499 PK502B PK543(A) THREE ENTRANCE REV1 060204 1

Figure 3—Using a CT502A Connector to Interconnect the PK502B and the PK543A

Explanation:
The CT502A is intended to provide a quick and easy means to interconnect the PK502B and the PK543A via a direct connection. Each connector includes additional unconnected wires for connection to additional devices beyond the initial PK502B and PK543A.





Notes:
1. To convert a CT502A to CT502, simply cut off the 6 pin connector.
2. The "Z" output can be used by relocating the Green & Green wire combination to the empty "Z" opening on the 6 pin connector.
3. Additional wires are provided on the 6 pin connector (K, C, & ZW (or Z)) to facilitate connection to additional PK502B units. If unused, these must be isolated and taped off.

IL499 CT502A PK543A Connection Information Rev0 060204 1

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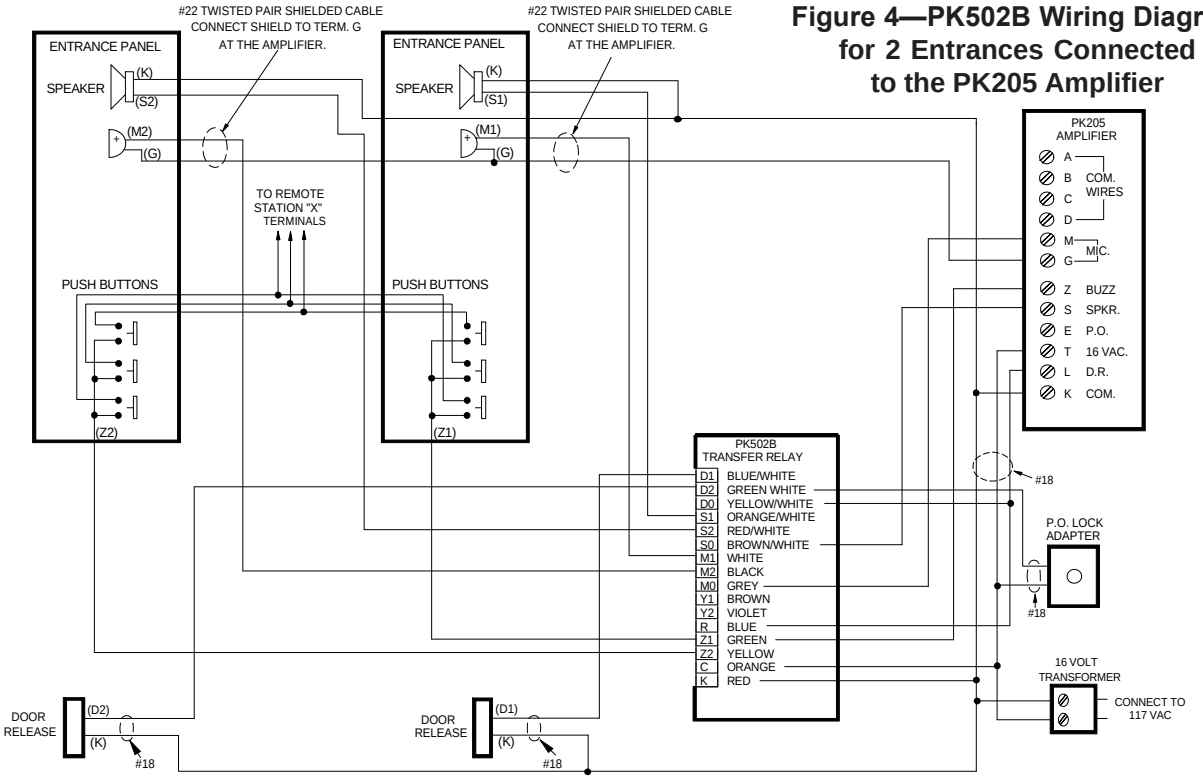
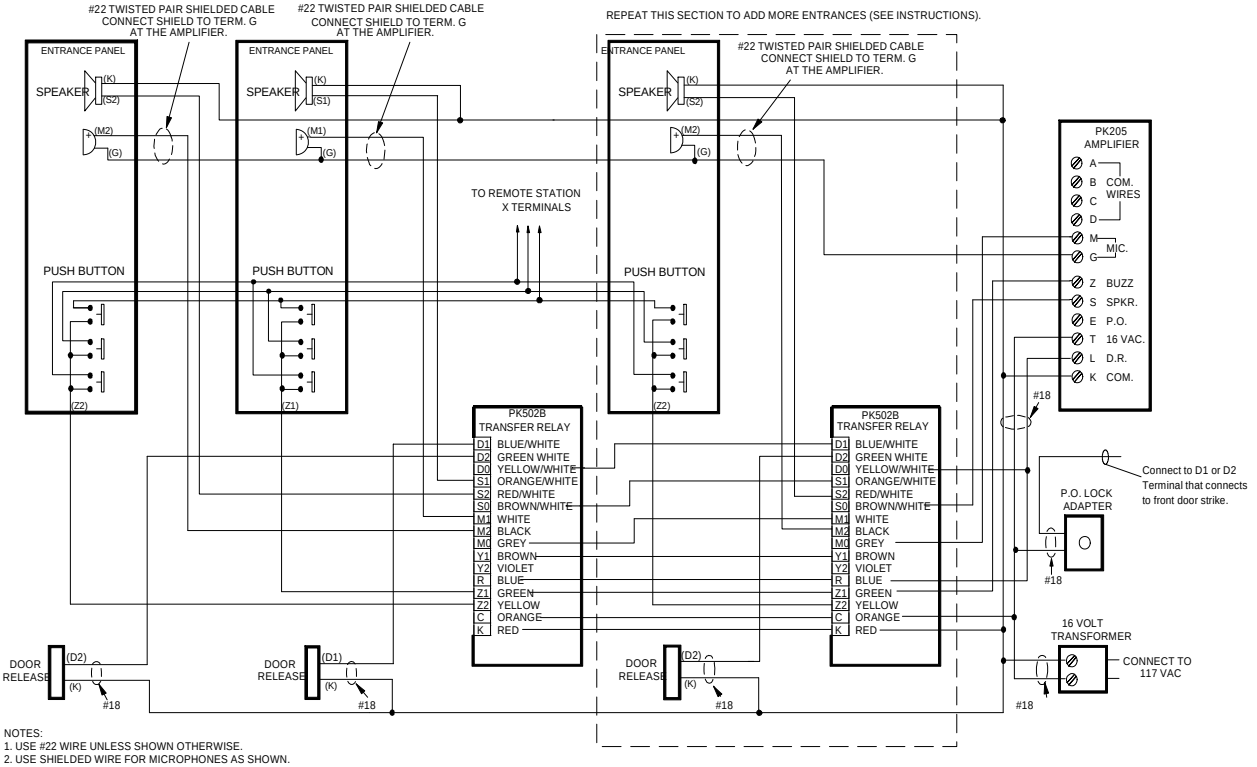
Figure 4—PK502B Wiring Diagram for 2 Entrances Connected to the PK205 Amplifier



NOTES:
1. USE #22 WIRE UNLESS SHOWN OTHERWISE.
2. USE SHIELDED WIRE FOR MICROPHONES AS SHOWN.
3. CONNECT SPEAKER COMMONS DIRECTLY TO THE AMPLIFIER.
4. CONNECT REMOTE STATION COMMON WIRING AS REQUIRED FOR SINGLE ENTRANCE.

IL499 PK502B PK205 TWO ENTRANCE REV1 060204 1

Figure 5—PK502B Wiring Diagram for 3 to 8 Entrances Connected to the PK205 Amplifier



NOTES:
1. USE #22 WIRE UNLESS SHOWN OTHERWISE.
2. USE SHIELDED WIRE FOR MICROPHONES AS SHOWN.
3. CONNECT SPEAKER COMMONS DIRECTLY TO THE AMPLIFIER.
4. CONNECT REMOTE STATION COMMON WIRING AS REQUIRED FOR SINGLE ENTRANCE.

IL499 PK502B PK205 THREE ENTRANCE REV1 060204 1

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SS102A and SS106 Transformers
PO001 Electric Door Opener
Specification Sheet

IL127
Section A
Rev. 13 - 08/2011

PO001 ELECTRIC DOOR OPENER

TekTone®'s PO001 Electric Door Opener is for use in unlocking and locking doors from a variety of TekTone® remote stations. The door opener can be installed in place of the door lock, or on a door jamb with various door lock sets. The PO001 is a normally locked type with heavy duty coils, and operates on 8-16 VAC or 3-6 VDC. The unit features a flat face with satin zinc finish and solid brass locking latch for long wear. Model PO001 is reversible for mortise-type locks and latches up to 1/2" width and throw, and is ideal for most narrow jamb mortise-type installations. Depending on the specific job requirements, the PO001 can be reversed for right or left-hand door installation.

DIMENSIONS

Faceplate:	1.25" × 5.875" (31.8 mm × 149 mm)	
Case width:	0.9375"	(24 mm)
Case depth:	1.4375"	(37mm)
Latch opening:	1.375"	(35 mm)

SS102A, SS106 TRANSFORMERS

TekTone®'s SS102A and SS106 Class 2 Transformers offer compact, easy-to-install low voltage AC power sources for use with various TekTone® intercom systems. Both transformers are UL® Listed and will safely take themselves offline when overheated. The transformers are constructed for easy installation in a standard 1/2" knockout or for surface installations, and may be used in plastic or metal boxes. Primary wire connections are made using the pre-stripped pigtails and ground wire; secondary connections are made using screw terminals.

SS102A

SS106

SPECIFICATIONS

SS102A	120 VAC primary, 16 VAC 10 VA secondary
SS106	120 VAC primary, 8 VAC 20 VA 16/24 VAC 30 VA secondary

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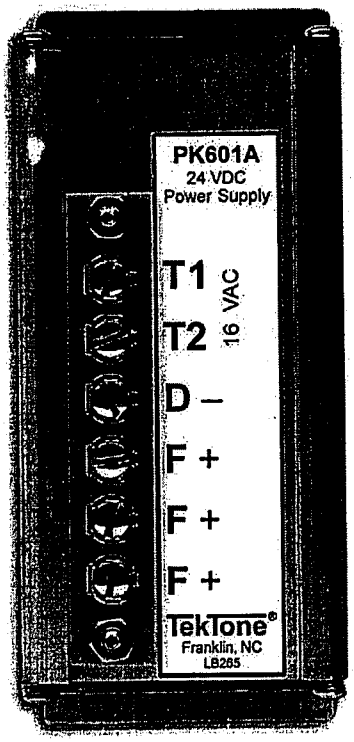
PK601A 24 VDC Power Supply Specification Sheet

IL420
Section D
Rev. 11-08/2010



PK601A
24 VDC Power Supply

FEATURES

The PK601A is a 24 VDC power supply designed to power auxiliary signaling devices used in TekTone® emergency call systems. The unit provides a filtered 24 VDC output rated at 1 amp.

Although specifically designed for use with emergency call systems, the PK601A may also be used as a DC silent door opener adapter in TekTone® apartment entrance systems.

- Easy installation
- Low-voltage operation
- Multiple applications
- Precision engineering

SPECIFICATIONS

Dimensions:	Height:	5" (127mm)
	Width:	2.375" (60mm)
	Depth:	2.25" (57mm)
Construction:	Quality electronic components mounted on a PC board encased in a rugged extruded aluminum housing	
Connections:	Screw terminals	
Mounting:	Surface	
Output voltage:	24 VDC	
Output current:	1 amp	
Power Requirements:	16 VAC, 30 VA	

ARCHITECTS' AND ENGINEERS' SPECIFICATION

The power supply shall be TekTone® PK601A, or approved equal, and shall provide 24 VDC power to auxiliary signaling devices used in specified TekTone® emergency call systems.

The PK601A shall also be suitable for use as a DC silent door opener adapter in specified TekTone® apartment entrance systems.

The PK601A circuitry shall be housed in a rugged extruded aluminum case. Screw terminals shall be provided for installation wiring.

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Phone: (828) 524-9967 • Fax: (828) 524-9968 • Tech Support: Choose option 2 • Sales: Choose option 3
TekTone®'s quality system is registered by UL® to the ISO 9001 standard. (Reference #10001510.)

INSERT 6

APARTMENT INTERCOM REMOTE STATION EQUIPMENT

IR203E, IR204E, IR205E Apartment Intercom Stations Specification Sheet

IL233
Section A
Rev. 19 - 08/2010

IR203E, IR204E, IR205E

ARCHITECTS' AND ENGINEERS' SPECIFICATION

Apartment intercom stations shall be TekTone®'s IR203E, IR204E or IR205E. The stations shall be equipped with momentary-action push buttons for talk, listen and door operation. Buttons shall be labeled in English, and with both international and Braille symbols. The speaker/microphone shall be a 2.5" high-sensitivity type with voice-frequency response. The station shall have an attractive, flame-retardant ABS plastic faceplate with screw terminal connections.

Required wiring shall be just 2 common and 1 selective wires for the IR203E station; 3 common and 1 selective wires for the IR204E station; and 4 common and 1 selective wires for the IR205E station.

FEATURES

The IR203E, IR204E, IR205E Apartment Intercom Stations combine modern styling with ease of operation to provide natural, clear voice communication and positive door-release operation. The attractive flame-retardant ABS plastic faceplates are surface mounted, and blend with any setting. The advanced circuitry and versatility permit use in large or small buildings, with one or several entrances.

A wide variety of optional accessories is available to provide additional functions, such as multiple entrance operation and post office door release.

- Surface mounted
- Simple, push button operation
- Easy installation
- Advanced design
- Automatic privacy
- Clear voice quality
- Precision-engineered for reliability
- English text, international symbols and Braille

SPECIFICATIONS

Dimensions:	Height:	6.875"	(175 mm)
	Width:	5"	(127 mm)
	Depth:	1.25"	(32 mm)
Finish:	Flame-retardant ABS plastic.		
Controls:	Individually replaceable push buttons with self-wiping contacts. Identified for talk, listen and door functions.		
Speaker/Mic:	2.5" (62.5 mm) with voice response. Also used for electronic tone signal.		
Connection:	Screw terminals standard.		
Housings:	Single-gang ring or single-gang electrical box.		

REQUIRED COMPONENTS

AM/CM Series	Entrance Panels
PK543A	Amplifier
SS Series	Transformers

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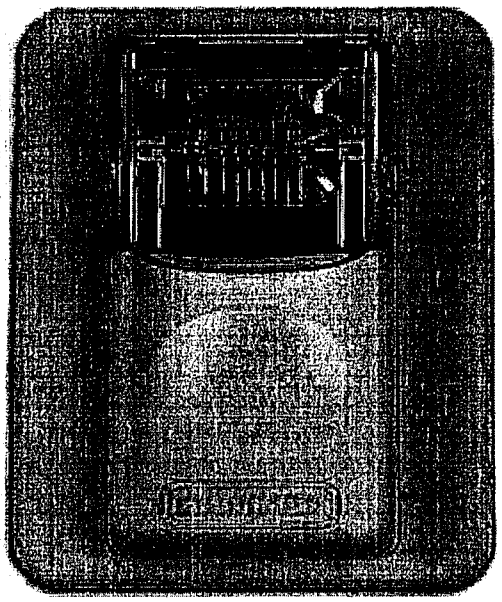
LI404B Strobe Specification Sheet

IL544
Section E
Rev. 8 - 08/2010



LI404B Corridor Light

ARCHITECTS' AND ENGINEERS' SPECIFICATION

Strobe light shall be TekTone® LI404B or approved equal. Operation shall be accomplished by placing a call to a remote station. The strobe light shall flash for approximately 15–20 seconds upon detection of the incoming call signal.

The strobe light shall have a brightness of 15 candela per UL® 1971 (75 candela per UL® 1638). It shall be encased in an attractive, flame retardant (UL® 94V-0) plastic housing.

The strobe light shall meet ADA and UL® requirements for signaling appliances.

FEATURES

The LI404B Strobe is a high-intensity remote visual signaling device for use with TekTone® PK543, PK205 and PK104B Amplifier Apartment Systems, and with TekTone® PK502B Transfer Relays. The unit is primarily for use in locations where hearing-impaired persons require supplemental call notification, but can be used anywhere a visual indication of an incoming call is desired. The bright strobe light flashes for approximately 15–20 seconds when an incoming call is detected.

The device can be installed in most standard single or double gang electrical boxes or similar indoor openings. It is not a weatherproof device and therefore should not be used for any outdoor applications. Installation is facilitated by the use of simple connections to the pre-mounted circuitry and a complement of mounting hardware.

The LI404B Strobe Light portion meets ADA and UL® 1971 requirements.

SPECIFICATIONS

Dimensions:	Height:	5.5"	(140 mm)
	Width:	4.5"	(114 mm)
	Depth :	3.5"	(89 mm)
	Projects:	2.5"	(63.5 mm) from mounting surface
Construction:	Attractive, flame-retardant (UL® 94V-0) plastic housing		
Strobe:	15 candela per UL® 1971		
Power:	24 VDC, 57 mA DC nominal		
Wiring:	18 gauge minimum, 750' maximum		
Installation:	Standard single or dual gang box		

REQUIRED COMPONENTS

PK amplifier system: includes PK543, PK205, and related system components (PK502B Transfer Relays, IR & TA Remote Stations, CM & AM Entrance Panels)

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