DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that
SIMPLEXGRINNELL
20 THOMAS DR
WESTBROOK, ME 04092

For installation at
454 COMMERCIAL ST
INTERNATIONAL MARINE TERMINAL

Job ID: 2011-09-2206-NEWCOM

CBL: 043- D-005-001

has permission to install two master box fire alarm systems
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.	A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

58

Fire Prevention Officer **Code Enforcement Officer / Plan Reviewer**

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Final Fire

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • *www.portlandmaine.gov*

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2011-09-2206-NEWCOM install two master box fire alarm systems

For installation at: 454 COMMERCIAL ST INTERNATIONAL MARINE TERMINAL

CBL: 043- D-005-001

Conditions of Approval:

Fire

The installation shall comply with the following:

City of Portland Chapter 10, Fire Prevention and Protection;

NFPA 1, *Fire Code* (2009 edition), as amended by City Code;

NFPA 101, *Life Safety Code* (2009 edition), as amended by City Code;

City of Portland Fire Department Rules and Regulations;

NFPA 72, *National Fire Alarm and Signaling Code* (2010 edition), as amended by Fire Department Rules and Regulations;

NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment* (2009 edition), as amended by Fire Department Rules and Regulations; and

NFPA 70, *National Electrical Code* (2011 edition) as amended by the State of Maine.

The fire alarm system shall be certified by a master fire alarm company and have a new fire alarm inspection sticker.

In field installation shall be installed per code as conditions dictate.

All smoke detectors and smoke alarms shall be photoelectric.

Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.

All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".

Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance.

System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.

Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.

Both systems shall use Contact Id Codes and report directly to the Fire Department via the AES master box connection.

Three (3) exterior manual pull stations shall be designed, located and installed as approved by the Fire Department.

Master Box Approval

Applicant: John Hale - SimplexGrinnell
App Phone #: 207-239-5100
Building Name: International Marine Terminal Maintenance Building and Pier
Building Address: 460 Commercial St
Occupancy: Marine Terminal
Assembly OL>300, 20 unit apartment building, etc.

Emergency Contact: John Henshaw
Emergency phone #: 207-624-3564
Date of Application: 5/22/12
Billing Address: 20 Thomas Drive Westbrook, ME 04092
Comments:

Applicant completes red box and submits with Fire Alarm Permit

1

FIRE PREVENTION: ☑ Approved ☐ Denied

5 / 22 / 12
Date

B J Awalt Jr.
Fire Prevention Officer

Zone 1: Maintenance Building Water Flow
Zone 2: City disconnect – Maintenance Building Water Flow
Zone 3: Maintenance Building Pulls and detectors
Zone 4: City disconnect – Maintenance Building Pulls and Detectors
Zone 5: Yard Box 3
Zone 6: Unassigned
Zone 7: Unassigned
Zone 8: AES Tamper switch

Modify City Box response to alarm sounding in CAD: ☐ YES ☑ NO

2

FIRE ALARM: Box #: Reuse 3335

ELECTRICAL DIVISION: ☐ Approved ☐ Denied

3

Box Type: AES Radio Box / _____
New / Other

Test Date: ____/____/____ In Service Date: ____/____/____ _____
Fire Alarm Technician

AES / Circuit if applicable:

FIRE ALARM: Same Running Assignment As Box: _____

4

Notifications: ☐ All Stations ☐ Run Books ☐ Digitizer ☐ Computer ☐ Cad Box Test

☐ South Portland ☐ _____ _____
Other / Dispatcher

5

BILLING: ☐ Entered _____
Financial Officer

Master Box Approval

Applicant: John Hale - SimplexGrinnell
App Phone #: 207-239-5100
Building Name: International Marine Terminal Office Building and Yard
Building Address: 460 Commercial St
Occupancy: Marine Terminal
Assembly OL>300, 20 unit apartment building, etc.

Emergency Contact: John Henshaw
Emergency phone #: 207-624-3564
Date of Application: 5/22/12
Billing Address: 20 Thomas Drive
Westbrook, ME 04092
Comments:

Applicant completes red box and submits with Fire Alarm Permit

1

FIRE PREVENTION: ☑ Approved ☐ Denied

5 / 22 / 12
Date

B J Waelz Jr.
Fire Prevention Officer

Zone 1: Office Building Water Flow
Zone 2: City disconnect – Office Building Water Flow
Zone 3: Office Building Pulls and detectors
Zone 4: City disconnect – Office Building Pulls and Detectors
Zone 5: Yard Box 1
Zone 6: Yard Box 2
Zone 7: Unassigned
Zone 8: AES Tamper switch

Modify City Box response to alarm sounding in CAD: ☐ YES ☑ NO

2

FIRE ALARM: Box #: _____

ELECTRICAL DIVISION: ☐ Approved ☐ Denied

3

Box Type: AES Radio Box / _____
New Other

Test Date: ____/____/____ In Service Date: ____/____/____ _____
Fire Alarm Technician

AES / Circuit if applicable:

FIRE ALARM: Same Running Assignment As Box: _____

4

Notifications: ☐ All Stations ☐ Run Books ☐ Digitizer ☐ Computer ☐ Cad Box Test

☐ South Portland ☐ _____ _____
Other Dispatcher

5

BILLING: ☐ Entered _____
Financial Officer

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:	CBL:	
2011-09-2206-NEWCOM **2012-15098-FIRE ALARM**	**1/26/2012**	**043- D-005-001**	
Location of Construction: **454 COMMERCIAL ST**	Owner Name: **CITY OF PORTLAND**	Owner Address: **389 CONGRESS ST** **PORTLAND, ME 04101**	Phone:
Business Name:	Contractor Name: **Simplex Grinnell (installer Don's Electric @ 933-4500)**	Contractor Address: **20 Thomas Drive, Westbrook, ME 04092**	Phone: **978 –731-7243**
Lessee/Buyer's Name:	Phone:	Permit Type: **FIRE ALARM**	Zone: **WPDZ**
Past Use: International Marine Terminal	Proposed Use: Same – International Marine Terminal – connected to permit #2011-09-2206 – install fire alarm	Cost of Work: **11000.00**	CEO District:
		Fire Dept: 5/23/12 ✓ Approved w/ conditions ___ Denied ___ N/A Signature: BJ Arnold Jr. (50)	Inspection: Use Group: Type: Signature:
Proposed Project Description: **install fire alarm (connected to permit #2011-09-2206)**		Pedestrian Activities District (P.A.D.)	
Permit Taken By:			

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	✓ Not in Dist or Landmark
___ Wetlands	___ Miscellaneous	___ Does not Require Review
___ Flood Zone	___ Conditional Use	___ Requires Review
___ Subdivision	___ Interpretation	___ Approved
___ Site Plan	___ Approved	___ Approved w/Conditions
___ Maj ___ Min ___ MM	___ Denied	___ Denied
Date: OK 1/26/12 TBM	Date:	Date: TBM

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

WPD2

original permit – 2011-09-2206
2012-15098.

Fire Alarm Permit

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 460 (454) Commercial St Portland ME CBL: 73-D-5

Exact location: (within structure) ~~2012-1-5098~~

Type of occupancy(s) (NFPA & ICC): New Business Occupancy - International Marine Terminal

Building owner: _____

System Designer (point of contact): Must be SimplexGrinnell (Steven C. Kalafarski) Vicet IVA 77584

Designer phone: (978) 731-7243 E-mail: SKalaFarski@SimplexGrinnell.com

Installing contractor: Doms Electric Certificate of Fitness No: 1019

Contractor phone: (207) 933-4500 E-mail: _____

This is a new application: YES ⊗ NO ○ New AES Master Box: YES ⊗ NO ○
(Include Master Box approval form)

Amendment to an existing permit: YES ○ NO ⊗ Permit no: _____

The following documents shall be provided with this application:

- ☐ Floor plans
- ☒ Wiring diagram
- ☐ Annunciator details
- ☐ Input/ Output Matrix
- ☒ Equipment data sheets
- ☐ Electrical Permit Pulled (check alarm/com)
- ☐ Scope of Work
- ☒ 11 ½ x 17s
- ☒ pdf copy (may be e-mailed)
- ☐ Designer qualifications
- ☒ Battery/ voltage drop calcs

Master box approval only: YES ○ NO ○
(If yes check *New AES Master Box* above)

COST OF WORK: $11,000.00

PERMIT FEE: $130.00
($10 PER $1,000 + $30 FOR THE FIRST $1,000)

RECEIVED
JAN 26 2012
Dept. of Building Inspections
City of Portland Maine

The designer shall be the responsible party for this application. Download a new copy of this application at www.portlandmaine.gov/fire for every submittal. Submit all plans in electronic PDF in addition to readable 11 ½ x 17s to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire alarm system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with the *City of Portland Technical Standard for Signaling Systems for the Protection of Life and Property*, available at www.portlandmaine.gov/fire .

Applicant signature: Steven C. Kalafarski Date: 1-23-12

CITY OF PORTLAND, MAINE
Department of Building Inspections

Original Receipt

1-26 20 12

Received from Simplex Grinnell

Location of Work 454 Commercial

Cost of Construction $_____ Building Fee: 130

Permit Fee $_____ Site Fee: _____

Certificate of Occupancy Fee: _____

Total: 130

Building (IL) ___ Plumbing (I5) ___ Electrical (I2) ___ Site Plan (U2) ___

Other Fire Alarm

CBL: 43D5

Check #: CC **Total Collected $** 130

No work is to be started until permit issued.
Please keep original receipt for your records.

Taken by: S. Lynn

WHITE - Applicant's Copy
YELLOW - Office Copy
PINK - Permit Copy

Portland Marine Terminal

Portland, ME

Fire Alarm System
Equipment Submittal
10/21/11

SimplexGrinnell
BE SAFE.

A Tyco International Company

Project:	**Portland Marine Terminal** **460 Commercial Street** **Portland, ME 04101**
Customer:	**Dons Electric** **767 Main Street** **Monmouth, ME 04259**
Date:	**10/21/11**
Sales Representative:	**Sam Martin**

FIRE ALARM SYSTEM
EQUIPMENT SUBMITTAL

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

SimplexGrinnell District Contact Information:

Operations Manager: Paul Doughty

SimplexGrinnell
20 Thomas Drive
Westbrook, ME 04092

Sales: 207-842-6440
Service: 207-842-6440
Fax: 207-842-6439

Prepared by:

SimplexGrinnell
Engineering Support Services
50 Technology Drive
Westminster, MA 01441

Project Engineer: Steven C. Kalafarski
NICET IV #77524

Submittal Approval:

Approved By:_____ Date:_____

PORTLAND MARINE TERMINAL
FIRE ALARM SYSTEM EQUIPMENT SUBMITTAL

TABLE OF CONTENTS

INSERT 1

PROJECT BILL OF MATERIAL

BILL OF MATERIAL
PORTLAND MARINE TERMINAL
FIRE ALARM SYSTEM EQUIPMENT

TAB	QTY	MODEL	DESCRIPTION
MAINTENANCE/RUBB BUILDINGS CONTROL EQUIPMENT & ACCESSORIES			
2	1	4010-9101	FACP 250PT 4NAC 4A 120V BEIGE
2	2	4010-9806	2PT CLASS A NAC ADAPTER
2	2	2081-9274	BATTERY, SYSTEM, 12VOLT, SEALED, LEAD ACID 10Ah
2	1	4606-9101	LCD ANNUN FOR 4010 FACP (N2)
2	1	3202	KNOX BOX KEY REPOSITORY
2	1	7788F	AES DIGITIZE RADIO TRANSMITTER
2	1	BD7-12	AES 12V 7AH SEALED LEAD-ACID BATTERY
2	1	1640	AES UL TRANSFORMER
2	1	SG SWITCH	AES DISCONNECT SWITCH
2	1	ADI GSW TSW-01S	TAMPER SWITCH
2	1	SSU00685	SPACE AGE DOCUMENT CABINET
2	4	2081-9044	OVERVOLTAGE SUPPRESSOR
2	4	2081-9028	ISOLATED LOOP CIRCUIT PROTECTOR
SECURITY BUILDING CONTROL EQUIPMENT & ACCESSORIES			
2	1	4010-9101	FACP 250PT 4NAC 4A 120V BEIGE
2	2	4010-9806	2PT CLASS A NAC ADAPTER
2	2	2081-9274	BATTERY, SYSTEM, 12VOLT, SEALED, LEAD ACID 10Ah
2	1	3202	KNOX BOX KEY REPOSITORY
2	1	7788F	AES DIGITIZE RADIO TRANSMITTER
2	1	BD7-12	AES 12V 7AH SEALED LEAD-ACID BATTERY
2	1	1640	AES UL TRANSFORMER
2	1	SG SWITCH	AES DISCONNECT SWITCH
2	1	ADI GSW TSW-01S	TAMPER SWITCH
2	1	SSU00685	SPACE AGE DOCUMENT CABINET
INITIATING/ADDRESSABLE DEVICES & ACCESSORIES			
3	11	4099-9001	IDNET SINGLE ACTION PULL STATION
3	14	4098-9714	TRUEALARM PHOTO SMOKE SENSOR
3	17	4098-9792	TRUEALARM SENSOR BASE
3	4	4090-9001	IDNET SUPERVISED IAM
3	8	4090-9002	IDNET RELAY IAM
3	3	4098-9733	TRUEALARM HEAT SENSOR
3	4	4090-9810	4090-9001 IAM SINGLE GANG BOX MOUNTING BRACKET
3	4	4090-9806	SEMI-FLUSH MNT SINGLE GANG BOX COVER PLATE W/LITE PIPE
3	8	4090-9802	SURFACE MNT DOUBLE GANG BOX COVER PLATE W/LITE PIPE
NOTIFICATION APPLIANCES			
4	7	4906-9101	V/O M-C NON-ADDRESS, RED, WALL
4	16	4906-9127	A/V M-C NON-ADDRESS, RED, WALL

INSERT 2

CONTROL EQUIPMENT, BATTERIES & ACCESSORIES

Simplex

TrueAlarm® Fire Alarm Controls

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

Model 4010 Fire Alarm Control Panel for TrueAlarm Analog Sensors and IDNet™ Addressable Devices

Features

Standard features include:

- Up to 250 addressable TrueAlarm sensor or addressable device points using IDNet communications that operate *with either shielded or unshielded* twisted pair wiring**
- Four, 2 A notification appliance circuits (NACs) with solid state current protection
- Power supply/battery charger with 4 A available for NACs and auxiliary power
- Internal event reporting DACT module (standard on models 4010-9101, 4010-9102, & 4010-9150)
- UL listed to Standard 864

Installation convenience features:

- Power-limited design provides electronic modules on a one-piece chassis with up-front terminal blocks for wiring access
- Compact NEMA 1 rated cabinet is available in beige or red and can be pre-shipped for early installation

Setup, programming, and maintenance features:

- Device level ground fault search, locate, and isolate
- *Auto Program* for general alarm operation
- TrueAlarm individual analog sensing with front panel information and selection access
- "Dirty" TrueAlarm sensor maintenance alerts, service and status reports including "almost dirty"
- Default TrueAlarm sensor device type operation
- TrueAlarm sensor peak value performance report
- Duplicate address error detection
- Front panel or PC programming
- WALKTEST™ silent or audible system test†
- Software verification simulation mode

Supports the following IDNet devices:

- Addressable manual stations; TrueAlarm sensor bases, duct housings, and isolator bases
- Quad-state zone adapter modules (ZAMs) for initiating device monitoring
- Quad-state line powered individual addressable modules (IAMs) for initiating device monitoring and relay control
- 4009 IDNet NAC Extenders and TrueAlert® Addressable Controllers and accessories

Available option modules include:

- Door mounted 24 LED annunciator (std. on ULC models)
- Network connection, or Point Reporting DACT
- Class A, NAC adapter module
- RS-232 ports for printer and maintenance PC
- Expansion power supply; Auxiliary Relay Module or City Interface
- Equipment for Suppression Release Applications (refer to data sheet S4010-0003)

Compatible with Simplex® auxiliary panels:

- 4003 Voice Control Panel
- 4081 Battery Cabinet with charger for 50 Ah batteries

4010 Fire Alarm Control Panel (with standard door)

Description

TrueAlarm fire alarm control panels have the ability to provide location accuracy for monitoring and control. When equipped with TrueAlarm analog sensing for smoke and heat detection, the processing power of the control panel also has the ability to analyze conditions at each location to provide accurate detection with significantly reduced maintenance costs.

The 4010 TrueAlarm Fire Alarm Control Panel has been specifically designed to provide addressable operation and analog detection in a cost-effective package for application sizes that previously were considered only appropriate for conventional zoned monitoring.

Installation and Service Ease. The 4010 mounts on a single chassis for quick installation and removal. Terminal blocks are large and up-front for easy access and inspection. Optional modules are easily and quickly installed, and programmed as required.

The 4010 cabinet provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting. Smooth cabinet surfaces are provided for locally cutting conduit entrance holes exactly where required. 4010 cabinets and electronics can be ordered separately, allowing early cabinet installation.

Ground Fault Assistance. Ground fault problems often occur during installation. The 4010 provides isolating circuitry, control of isolator bases, and software-controlled sequencing to isolate ground faults to specific identified locations. This assistance helps the installer to accurately locate the wiring problem for quicker repair.

* Refer to page 6 for listing details. 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 7170-0026:226 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.

** TrueAlarm analog smoke detection and IDNet addressable devices are protected by one or more of the following U.S. Patents: 5,155,468; 5,173,683; 5,543,777; 5,400,014; 5,552,765; 5,552,763; DES. 377,460; 4,796,025; 5,966,002; and 6,034,601.

† WALKTEST system test is protected under U.S. patent # 4,725,818.

4010 Operator Control Summary

Extensive Feature List. The 4010 Fire Alarm Control Panel provides access to an extensive feature list that includes:

- Providing easy and powerful operator information with a logical, menu-driven display
- Extensive and automatic diagnostics for maintenance reduction
- History Logs available from the LCD or capable of (optionally) being printed
- Software Verification, allowing detailed logic programming simulation to be conducted without activating connected outputs
- Control Panel (or service PC) label editing
- Password access control
- Auto Program Quick Configuration (Quick-CFIG) of connected modules and IDNet devices for general alarm operation to quickly get the system up and running

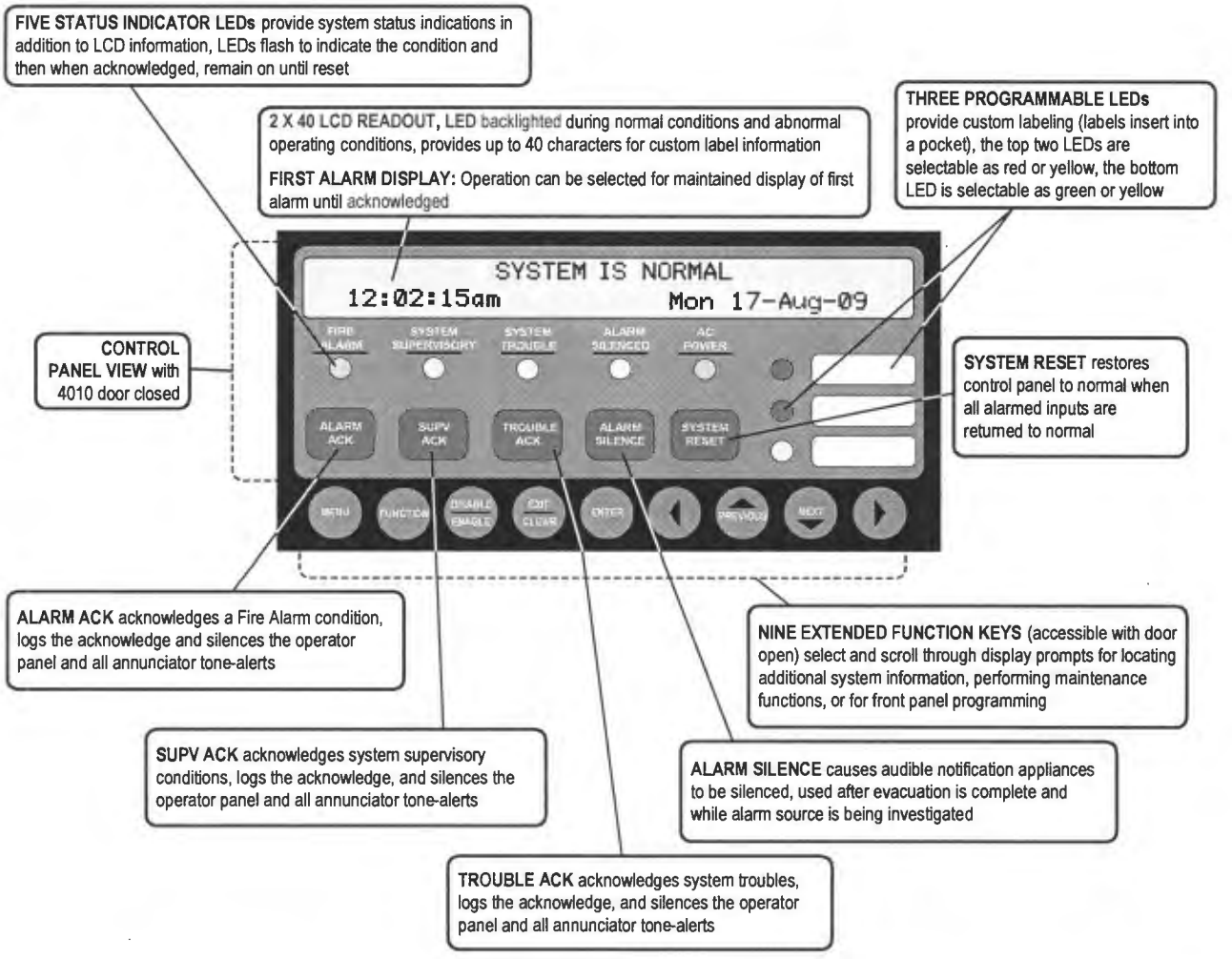
4010 Display Panel and Diagnostic Mode

Convenient Status Information. With the locking door closed, a window allows viewing of the status display. The 4010 status panel provides a two line by 40 character, super-twist LCD information display and eight status LED indicators as shown in the illustration below.

From this display, the LED indicators will describe the general category of activity being displayed with the LCD providing more detail. For the authorized user, unlocking the door will provide access to the control switches and allow further inquiry by scrolling the display for additional detail. (Refer to control panel functional illustration below.)

WALKTEST Diagnostic Operation Mode. The patented WALKTEST process allows a single person to perform system test. The system records test inputs such as intentional alarms or trouble and either logs the response (silent WALKTEST operation) or outputs a brief, recognizable audible notification signal (audible WALKTEST operation).

Extended Operator Control Panel Functions



IDNet Addressable Interface

Overview. The 4010 provides IDNet addressable device communications. Using a two-wire circuit, individual devices such as manual fire alarm stations, TrueAlarm sensors, and sprinkler waterflow switches can be directly connected (or interfaced) to the IDNet controller to communicate their identity and status. This addressability allows the location and condition of the connected device to be displayed on the 4010 panel LCD and on system annunciators. Additionally, control circuits (fans, dampers, etc.) may be individually controlled by using a relay IAM (individual addressable module). The 4009 IDNet NAC Extender or the TrueAlert Addressable controller can be controlled for local or remote notification appliance expansion. (Refer to compatible device lists on document S4090-0011 and to individual device documentation for further details.)

Capacity. A total of 250 addressable monitor and control points may be intermixed on the same pair of wires. By using Zone Adaptor Modules (ZAMs) or Individual Addressable Modules (IAMs), conventional initiating devices can be connected to the IDNet circuit.

IDNet Addressable Operation. The IDNet controller continuously interrogates each addressable device on the communication channel for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuit for Class B operation.

Wiring Requirements. Refer to the specifications chart below. Distances are for shielded or unshielded wire. Shielded wire may provide protection from unexpected sources of interference and may be required for some applications.

Wiring Specifications

Size		18 AWG (0.82 mm^2)
Wire	Preferred	Shielded twisted pair (STP)
	Acceptable	Unshielded twisted pair (UTP)
Farthest Distance from Control Panel to Device		Up to 2500 feet (762 m)
Total Wire Length Allowed With "T" Taps for Class B Wiring		Up to 10,000 ft (3 km).

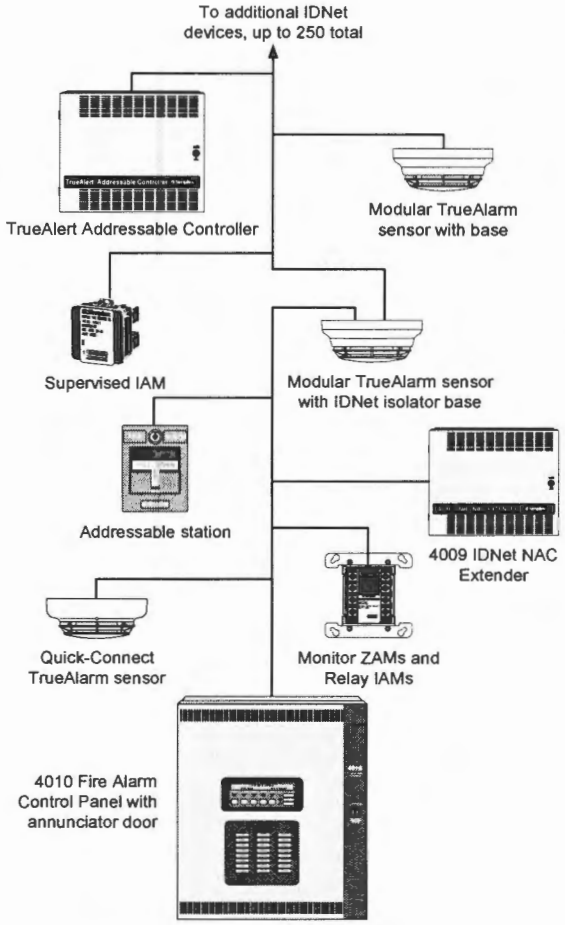
TrueAlarm Analog Sensors

TrueAlarm System Operation. IDNet communications are used for TrueAlarm smoke and temperature sensors. Every four seconds, smoke sensors transmit an output value based on their smoke chamber condition. The 4010 CPU maintains a current value, peak value, and an average value of each sensor's output. 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. The sensitivity of each sensor can be field programmed at the 4010 Control Panel for different levels of smoke obscuration (in percent) or for specific heat detection levels. In order 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.

TrueAlarm Analog Sensors *(Continued)*

TrueAlarm heat sensors can be selected for rate-of-rise detection as either 15° F (8.3° C) or 20° F (11.1° C) per minute with an independent fixed limit of 135° F (57° C) or 155° F (68° C). TrueAlarm heat sensors can also 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.



4010 Control Panel with Typical IDNet Devices

Diagnostics and Default Device Type

TrueAlarm operation gives the 4010 system the ability to automatically indicate when a sensor is almost dirty, dirty, and excessively dirty. The NFPA 72 (*National Fire Alarm Code*) requirement for a test of the sensitivity range of the sensors is fulfilled by the TrueAlarm ability to maintain the sensitivity level of each sensor.

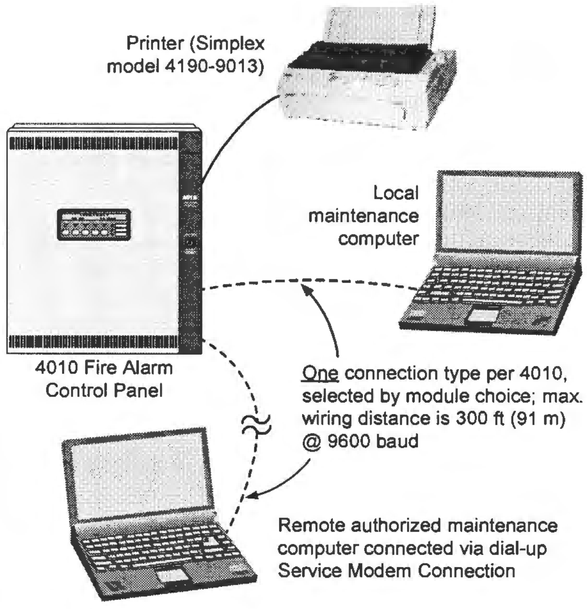
Modular TrueAlarm sensors use the same base and different sensor types (photoelectric smoke sensor, or heat sensor) can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily 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 to provide heat detection for building protection at that location.

TrueAlarm Information Details

True Alarm sensor data can be displayed on the system LCD, on a remote maintenance PC, or printed on a remote printer. With the proper operator access, a TrueAlarm Service Report can be generated to list the specific details of each TrueAlarm device. This report, as well as the Status Report can either be displayed on the remote maintenance PC or captured permanently by using a remote 80 character printer.

Status and Service Reports. The report samples below illustrate the format provided on either the remote maintenance PC or a printer. This information is available at the system LCD by identifying the specific point of interest and reading one point at a time.

Compatible Printer. Model 4190-9013 is a UL Standard 864 listed 80 column, 24 pin dot matrix printer (refer to data sheet S4190-0011).



RS-232 Connection Options
(refer to module selection on page 6)

TrueAlarm Status and Service Report Samples

Simplex 4010 Fire Alarm System — Page 1
REPORT 3 : TrueAlarm Status Report — 2:43:03 pm Mon 09-Mar-09

Zone Name	Custom Label		Sensi-tivity	Device Status	Almost Dirty
M1-1	ANALOG PHOTO	CLEAN ROOM	0.5 %	NORMAL	
M1-2	ANALOG ION	CLEAN ROOM	1.3 %	NORMAL	
M1-3	ANALOG PHOTO	MAIN LOBBY	2.5 %	NORMAL	*YES*
M1-4	ANALOG PHOTO	CONFERENCE ROOM 1	2.5 %	NORMAL	
M1-10	HEAT DETECTOR	GARAGE	135 F	NORMAL	
M1-11	ANALOG PHOTO	KITCHEN	3.7 %	NORMAL	*YES*

END OF REPORT

Typical TrueAlarm Status Report Information Printout and/or Maintenance PC Screen

Simplex 4010 Fire Alarm System — Page 1
REPORT 4 : TrueAlarm Service Report — 2:56:09 pm Mon 09-Mar-09

Dev Num	Custom Label	Alarm at:	Avg val	Current/ % alarm	Peak/ % alarm	State
1	ANALOG PHOTO - CLEAN ROOM	0.5/ 83	67	68/ 1%	72/ 10%	NOR
2	ANALOG ION - CLEAN ROOM	1.3/209	94	97/ 2%	101/ 1%	NOR
3	ANALOG PHOTO - MAIN LOBBY	2.5/185	117	117/ 0%	125/ 42%	NOR
4	ANALOG PHOTO - CONFERENCE ROOM 1	2.5/161	93	93/ 0%	93/ 0%	NOR
10	HEAT DETECTOR - GARAGE	135F/253	---	63/-67F	66/ 69F	NOR
11	ANALOG PHOTO - KITCHEN	3.7/216	116	116/ 1%	110/ 36%	NOR

END OF REPORT

Typical TrueAlarm Service Report Information Printout and/or Maintenance PC Screen

Standard Panel Features

N2 Communications for Serial Annunciator Control. Control for up to 6 remote Simplex Annunciator products including 24 Point I/O Module, and LCD Annunciator. Includes extensive troubleshooting diagnostics. (See list in next column for compatible devices.)

Access Port. RS-232 service port for connecting PC tools for service diagnostics and for programming the CPU Flash EPROM memory.

IDNet Addressable Communications Channel. Addressable channel provides communications for up to 250 remote addressable devices, including TrueAlarm analog sensors and isolator bases (see details on page 3).

Four NACs. Class B output is standard, rated for 2 A @ 24 VDC nominal, with solid state current protection. Class A operation is optional with the addition of an adapter module.

NAC operation can be selected for "on-until-Silence" or "on-until-Reset," and can be Continuous, Temporal pattern, or March Time pattern. ***(March Time is selectable for 20 bpm or 120 bpm for conventional appliances; or 60 bpm for SmartSync™ appliances.)*** NACs are individually selectable to control Simplex synchronized strobes or for Simplex SmartSync control that provides separate horn and synchronized strobe control using a 2-wire circuit. (SmartSync horn/strobe operation is protected under U.S. Patent No. 6,281,789.)

Two Auxiliary Output Circuits. Operation is programmable for trouble, alarm, supervisory, or other fire response functions. Output is one Form "C" dry contact each, rated 2 A @ 24 VDC. An optional relay kit is available for switching up to 0.5 A at 120 VAC.

Standard Power Supply. Output is rated 4 A for "Special Application" appliances and for "Regulated 24 DC" appliance power. ***(Special Application appliances include Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, horn/strobes, and speaker/strobes. See page 7 for additional information.)*** Internal system power is provided separately, allowing the 4 A to be available for NAC and auxiliary power tap functions. Over-current protection is solid state and self-resetting.

Auxiliary Power Tap. Provides up to 0.5 A of the standard power supply voltage, over-current protected. Compatible uses include power for: remote LCD annunciators, 24 Point I/O modules, sensor bases and duct housings that require external power, and addressable devices requiring external power.

Battery Charger. Capable of charging up to 25 Ah sealed lead-acid batteries (4010 cabinet mounted). A recharge time of 24 hours is typical with stable 120 VAC input. For applications requiring larger batteries, external charger/cabinet assemblies are available.

A depleted battery cutout feature is programmable to advise and/or to reduce current when battery voltage is low.

Optional Expansion Slot Modules

(The 4010 is available with a Simplex Network Interface. 4010 points can be declared "public.")

Network Interface, Modular Media. Available for wired connections or fiber optic. Require separate media modules. May be both wired, both fiber optic, or one of each.

Optional Expansion Slot Modules *(Cont'd)*

Network Interface, Fixed Media. Available for wired applications.

DACT, Point Reporting Module. Provides serial output information that can send location details to a remote receiving station.

DACT, Event Reporting Module. For applications where simple event status information is required (Alarm, Trouble, Supervisory, and AC power failure).

Dual RS-232 Module. Available for interfacing to a printer and a maintenance PC.

Single RS-232 Module with Service Modem Connection. Provides one port dedicated for connection to a printer, and a second port dedicated for dial-in from a service computer, typically located off-site. With an off-site computer, programming changes and system diagnostics can be performed remotely, reducing service time for repair or reprogram. Security is maintained by password protection.

Optional Chassis Mount Modules

4 A Expansion Power Supply provides two taps of 2 A each, 28 VDC, filtered, non-regulated. Output rating is 4 A for auxiliary power, 4 A for "Special Application" appliances and 2 A for "Regulated 24 DC" appliance power.

Battery Meter Module provides panel mounted ammeter and voltmeter for power supply monitoring.

Dual Circuit Class A NAC Adapter Module mounts on the main 4010 printed circuit assembly and provides the additional circuitry needed for Class A operation.

Dual Circuit City Connect Module provides the interface required for direct wired reporting to conventional city connection circuits. (Available with or without disconnect switches.)

Expansion Power Distribution Module provides two additional termination points for the 0.5 A auxiliary power output, or for one tap of the expansion power supply.

Relay Option Module provides three relays, one each for Alarm, Supervisory, and Trouble. Relay contacts are selectable for normally open or normally closed and are rated 2 A @ 32 VDC maximum.

N2 Communications Modules

Up to six of the following modules may be connected to the Simplex N2 serial communications bus.

4606-9101 LCD Annunciators provide remote acknowledge, reset, and alphanumeric status display. First Alarm display will work same as for the panel when selected (see page 2). (Refer to data sheet S4606-0001.)

24 LED Annunciator Doors are standard on ULC listed models and are available as door-only assemblies for electronics only packages or other aftermarket applications. This option uses the 24 Point I/O module with all points pre-assembled as LED outputs, with individual labels and each LED is selectable as red or yellow.

4605 Series 24 Point I/O Modules are available for remote mounting and provide 24 points that can be programmed as either general purpose switch inputs or system controlled outputs. Typical applications are for remote annunciators and monitoring and control of other related processes. (Refer to data sheet S4010-0002.)

4010 Fire Alarm Control Selection Chart and Module Location Rules (refer to diagrams on page 8)

Category	Model	Description	Voltage	Color
Control Panel Assembly (select one)	4010-9101	**UL Listed 4010 Fire Alarm Control Panel** with: door, cabinet, power supply/battery charger, IDNet interface, 4 NACs, 2 programmable auxiliary relays, and external N2 communications interface; 4010-9101 and 4010-9102 include internal common event reporting DACT	120 VAC	Beige
	4010-9102			Red
	4010-9201		240 VAC	Beige
	4010-9202			Red
	4010-9101C	English **ULC Listed 4010 Fire Alarm Control Panel**; same as above except: with 24 LED Annunciator door; and without DACT	120 VAC	Beige
	4010-9101CF	French		
	4010-9150	UL Listed **4010 Fire Alarm Control Panel, Electronics Only;** for pre-shipped cabinets, requires door and cabinet ordered separately; 120 VAC input; 4010-9150 has event reporting DACT; C & CF suffix models delete DACT		
	4010-9150C	ULC Listed English		
	4010-9150CF	ULC Listed French		

Optional Expansion Slot Features (two slots are available, select modules as required)

Category	Model	Description
Reporting and Network Modules (select one)	4010-9810	DACT Module (Common Event Reporting) — Includes two, 7 ft (2.1 m) long RJ45 cables
	4010-9816	DACT Module (Point Reporting)
	4010-9821	Network Interface Module with fixed, wired connections
	4010-9817	Network Interface Module, Modular; requires 2 (In/Out) media modules (see below)
Media Modules	4010-9818	Network Wired Media Module — Media modules mount on the 4010-9817 module without impact to slot allocation space.
	4010-9819	Network Fiber Optic Media Module
RS-232 Communications (select one)	4010-9811	Dual RS-232 Interface Module
	4010-9812	Single RS-232 Interface Module with Service Modem connection

Chassis Mounted Expansion Modules (select as required)

Category	Model	Description	
Expansion Power Supply (select one)	4010-9813	120 VAC input — 4 A Expansion Power Supply; rated 4 A for "Special Application" appliances; rated 2 A for "Regulated 24 DC" appliance power	
	4010-9823	240 VAC input	
Optional Features (select one)	4010-9820	Battery Meter Module (ammeter and voltmeter)	
	4010-9825	24 VDC Expansion Power Distribution Module, provides two additional termination points for an expansion power supply tap or the auxiliary power output	
Optional Features (select as indicated)	4010-9806	Dual Circuit Class A NAC Adapter Module, **two maximum**	
	4010-9809	Dual Circuit City Connect Module	**Select one maximum**
	4010-9829*	Dual Circuit City Connect Module w/o disconnect switches	
	4010-9803	Relay Option Module	

Accessories

Category	Model	Description	
Optional Features	4010-9826	120 VAC Auxiliary Relay Kit, allows **one** auxiliary relay to control up to 0.5 A @120 VAC, select as required; **2 maximum**	
	4010-9830 (CAF)	Suppression Release Appliqué, required for suppression release applications; suffix CAF selects a French appliqué	
	2975-9801	Semi-flush trim, beige, 1-7/16" (37 mm) wide	
	2975-9802	Semi-flush trim, red, 1-7/16" (37 mm) wide	
Batteries (required if batteries are internal; select one size; **two batteries are required**)	2081-9272	6.2 Ah Battery, 12 VDC	
	2081-9274	10.0 Ah Battery, 12 VDC	
	2081-9288	12.7 Ah Battery, 12 VDC	
	2081-9275	18 Ah Battery, 12 VDC; **NOTE: This battery size will not allow bottom entry conduit**	
	2081-9287	25 Ah Battery, 12 VDC	
Cabinets (select one if pre-shipped)	2975-9215	Red Cabinet	Dimensions: 22" H x 18" W x 5-3/8" D (559 mm x 457 mm x 137 mm)
	2975-9214(CF)	Beige Cabinet; CF suffix has French labels	
Doors (select one if pre-shipped or for use with 4010-9150)	4010-9858	Red Door with dress panel	Dimensions: 22" H x 18" W x 5/8" D (559 mm x 457 mm x 16 mm)
	4010-9857(CF)	Beige Door with dress panel; CF has French labels	
	4010-9860*	Beige Door with 24 LED Annunciator and dress panel	Dimensions: 22" H x 18" W x 1-23/32"D (559 mm x 457 mm x 44 mm) [see also S4010-0002]
	4010-9861*	Red Door with 24 LED Annunciator and dress panel	

* As of document revision date: 4010-9829 is not ULC listed;
4010-9860 and 4010-9861 are listed by UL, ULC, and CSFM; and FM approved;

4010 Operating Specifications

Input Power Requirements	Voltage Range	Frequency	Maximum Current
AC Input, 120 VAC base models	102 to 132 VAC	60 Hz	2 A
AC Input, 240 VAC base models	204 to 264 VAC	50/60 Hz	1 A
AC Input with 120 VAC expansion power supply	102 to 132 VAC	60 Hz	4 A
AC Input with 240 VAC expansion power supply	204 to 264 VAC	50/60 Hz	2 A

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

Output Ratings		
Standard Power Supply Output		Rated 4 A for "Special Application" appliances and for "Regulated 24 DC" appliance power; Battery charger for up to 25 Ah sealed lead-acid batteries
Notification Appliance Reference	Special Application	Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)
	Regulated 24 DC	Power for other UL listed appliances; use associated external synchronization modules where required
Auxiliary Power Output Tap from Standard Power Supply		Rated 0.5 A maximum @ 19.4 to 32 VDC; subtract current used from standard power supply output
Expansion Power Supply Output		Rated 4 A for "Special Application" appliances and auxiliary power; Rated 2 A for "Regulated 24 DC" appliance power; Two output taps of 2 A each are provided
NAC Ratings		2 A each maximum; up to 33 synchronized strobes maximum per NAC

Current Ratings for Optional Modules and Remote LCD Annunciator

Model	Module	Supervisory Current	Alarm Current
4010-9810	DACT (Common Event Reporting)	40 mA	40 mA
4010-9816	DACT (Point Reporting)	40 mA	40 mA
4010-9821	Network, wired communications	125 mA	125 mA
4010-9817	Network Modular, add media cards separately	24 mA	24 mA
4010-9818	Network Wired Media	47 mA	47 mA
4010-9819	Network Fiber Optic Media	36 mA	36 mA
4010-9811	Dual RS-232	75 mA	75 mA
4010-9812	Single RS-232 with Service Modem	100 mA	100 mA
4010-9806	Dual Class A NAC Adapter	0 mA	0 mA
4010-9809	Dual Circuit City Connect	20 mA	36 mA
4010-9829	Dual Circuit City Connect w/o disconnect switches	20 mA	36 mA
4010-9803	Relay Option Module	10 mA	37 mA
4010-9860 4010-9861 & ULC 4010s	24 LED Annunciator door	60 mA	83 mA (all LEDs on)
4606-9101	Remote LCD Annunciator (refer to data sheet S4606-0001)	65 mA	140 mA

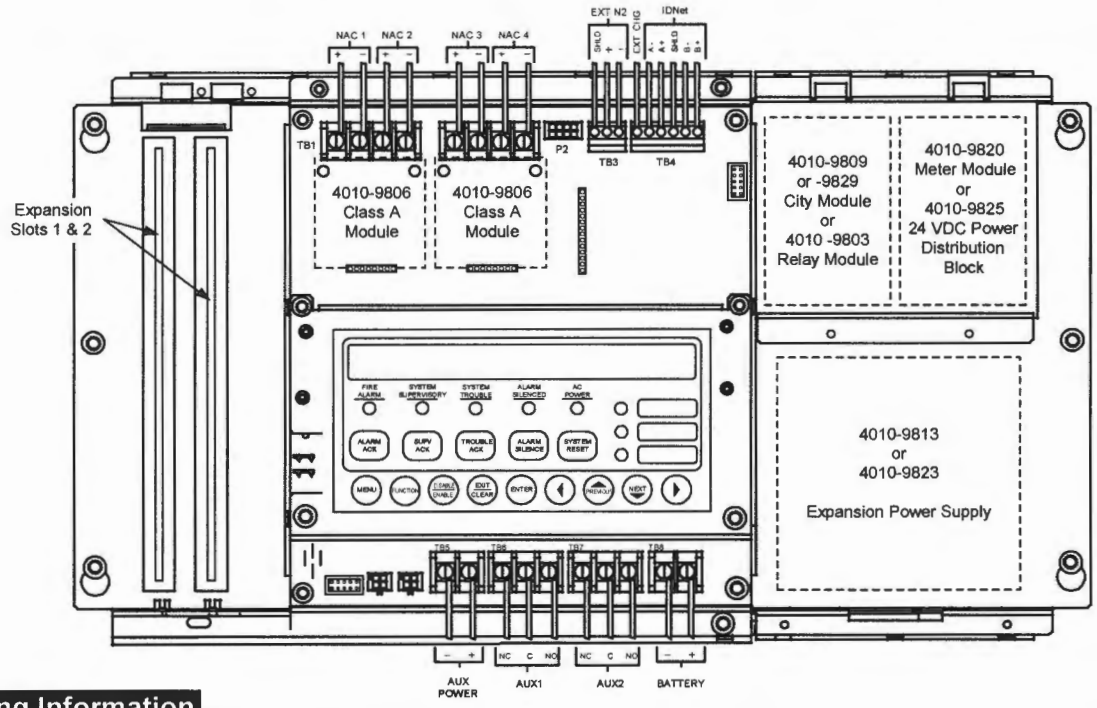
System Current (supplied separate from power supply output)

Base System with:	Supervisory Current**	Alarm Current**
no IDNet devices	195 mA	295 mA
50 IDNet devices	230 mA	330 mA
100 IDNet devices	265 mA	365 mA
150 IDNet devices	300 mA	400 mA
200 IDNet devices	335 mA	435 mA
250 IDNet devices	370 mA	470 mA

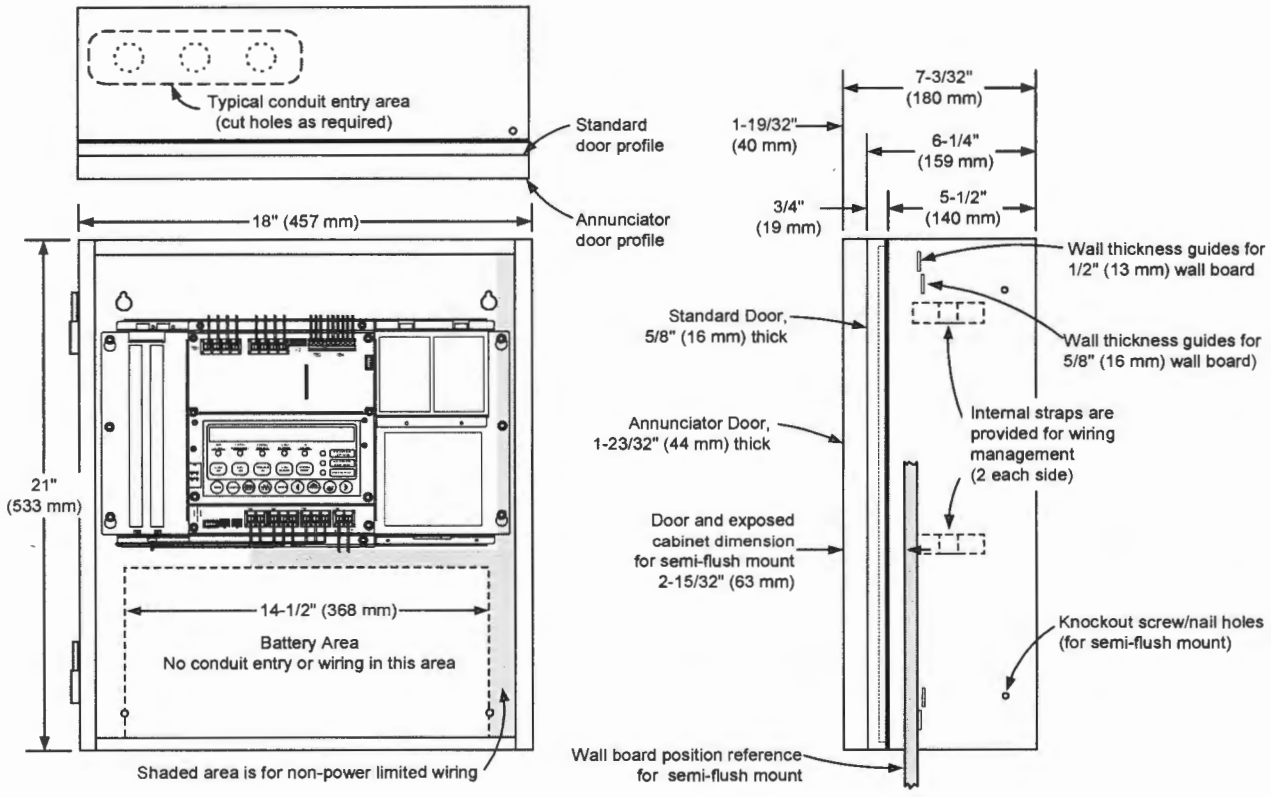
**** Current Calculation Information:**

1. To determine total supervisory current, add currents of modules in panel to base system value **and** all auxiliary loads.
2. To determine total alarm current, add currents of modules in panel to base system alarm current **and** add all panel NAC loads **and** all auxiliary loads.

4010 Module Layout Reference



Mounting Information



Simplex®

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 that are available with internal chargers
- Includes battery chargers with communications compatibility for use with 4010 Series fire alarm control panels and with 4100U Series fire alarm control 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.

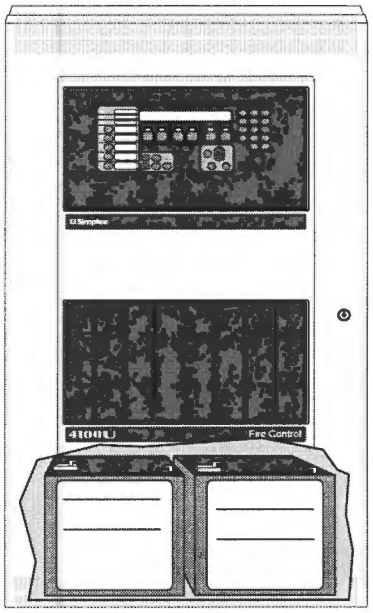
Because of their sealed construction, packaging is allowed within the system electronics enclosure (see illustration on page 2). When this is applicable, the quantity of system cabinets and the battery wiring distances are both minimized. Where required, external battery cabinets can be close-nippled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

Battery Details

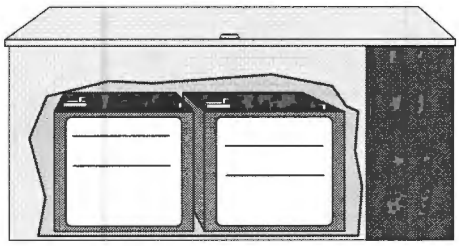
Charging. These batteries are intended to be used with compatible Simplex battery chargers.

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)*

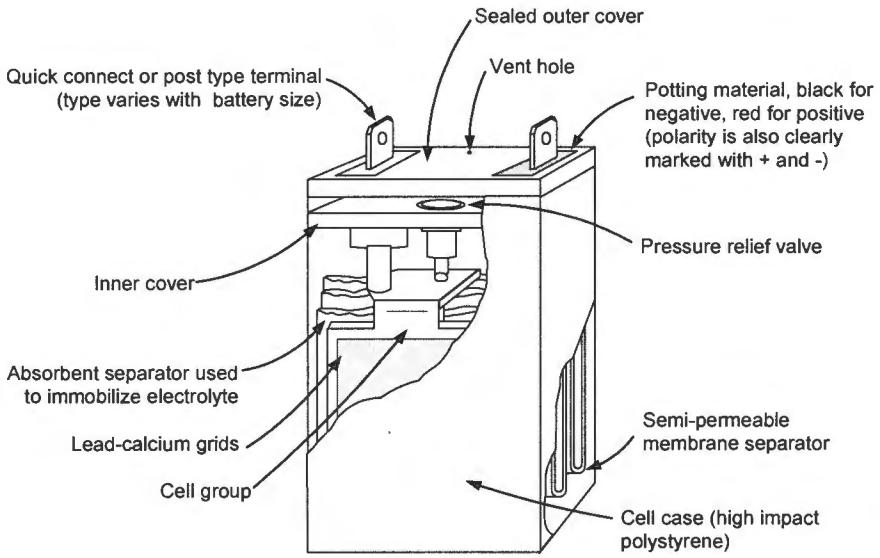
Shipping. Sealed lead-acid batteries are shipped via ground or sea transportation only. They are not shipped via air.

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 Safety Products Westminster.

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**	9-1/2" (241 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 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)									
		4003	4004	4004R	4005	4006 & 4008	4009 (all models)	4010	4100U	4100 & 4120 (2, 4 or 6-Unit)	4020 (2, 4 or 6-Unit)
2081-9272	6.2 Ah	✓	✓	✓	✓	✓	✓	✓	1, 2, or 3 bay	✓	✓
2081-9274	10 Ah	✓	✓	✓	✓	✓	✓	✓	1, 2, or 3 bay	✓	✓
2081-9288	12.7 Ah	✓	NA	✓	✓	✓	✓	✓	1, 2, or 3 bay	✓	✓
2081-9275	18 Ah	✓	NA	Note 3	✓	Ext	Ext	Note 2	1, 2, or 3 bay	✓	✓
2081-9287	25 Ah	NA	NA	Note 3	Ext	Ext	NA	✓	1, 2, or 3 bay	✓	Ext
2081-9271 (rectangular)	33 Ah	NA	NA	Note 3	Ext	NA	NA	Note 3	1, 2, or 3 bay	Ext	Note 4
2081-9276 ("square")	33 Ah	NA	NA	Note 3	Ext	NA	NA	Note 3	1, 2, or 3 bay	✓	Ext
2081-9296	50 Ah	NA	NA	Note 3	NA	NA	NA	Note 3	2 or 3 bay	Ext	Ext
2081-9279	110 Ah	Requires external battery cabinet									

✓ = 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.

External Battery Cabinet Compatibility Reference

Battery Cabinets without Chargers (connects to charger in panel)

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
2081-9270	multiple	✓	✓	✓	✓	✓	NA
2081-9280	4100U/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	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				
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.

Battery Cabinet Without Charger; Deep Design with Hinged Lid

Model	Color	Listings	Description	Dimensions
2081-9270	Red	Not listed	Battery cabinet **without** charger; cabinet has vented front, and hinged lid with support rod and lock on top	26-1/2" W x 12" H x 12" D (673 mm x 305 mm x 305 mm)

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	4100-9xxx Series	4100U System Power Supplies (SPS)	26-1/2" W x 12" H x 12" D (673 mm x 305 mm x 305 mm)
			4100-5111 4100-5112 4100-5113	4100U Additional SPS	
			4100-5125 4100-5126 4100-5127	4100U Remote Power Supply (RPS)	
			4100-5120 4100-5121 4100-5122	4100U TrueAlert Addressable Power Supply (TPS)	
			4100-0104 4100-0114 4100-0124	4100 Legacy power supplies	

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			

UL Listed

7744F/7788F

AES CORPORATION | IntelliNet For Alarm Monitoring

RF Subscriber Unit

UL Fire, AA Burglary and NFPA-72 Compliant

UL Listed

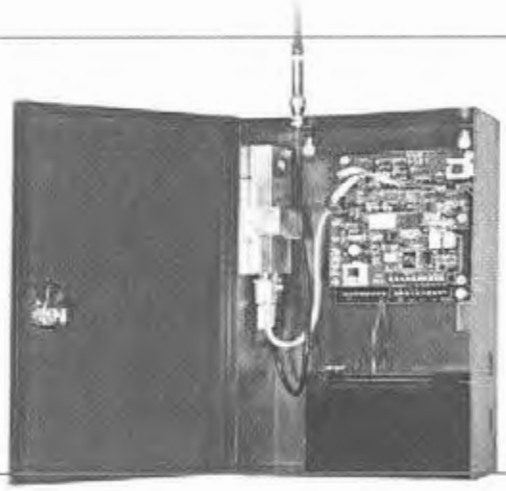
UL Listed Central Station

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 7744F & 7788F Zone Configurations**
- **Built-in Power Supply and Battery Charger**
- **Local Annunciation Options on Board**

Advanced Wireless Alarm Monitoring

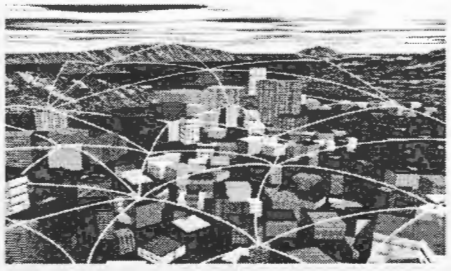
The 7744F/7788F smart subscriber unit links an alarm panel to an alarm monitoring central station. This confirmed message delivery transceiver and repeater is housed in a full size locking steel cabinet for superior performance. The 7744F/7788F supports a wide range of inputs such as NO/NC/EOL and direct 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 7744F/7788F 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
7744F – 4 reversing polarity inputs plus 4 programmable EOL inputs	FireTap 7770
→ **7788F** – 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

c UL us LISTED SIA SECURITY NETWORK OF AMERICA NFPA



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.

7744F/7788F
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 (7744F 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, 7.5 AHr

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

Please specify when ordering

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

For more information
Call 800-AES-NETS (800-237-6387)

AES Corporation | 285 Newbury Street | Peabody, MA 01960 USA
Tel. +1 978-535-7310 | Fax +1 978-535-7313 | Email info@aes-intellinet.com
Web www.aes-intellinet.com

Available configurations

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

7744F/7788F/08/09

NO EXCUSES!

FAD

Fire Alarm Documents

The FAD is the perfect fit to meet the demanding code requirements today. NFPA 72 10.18.2.2.1.8 states that a cabinet must be "prominently labeled 'FIRE ALARM DOCUMENTS'."

This durable 16 gauge steel enclosure with a solid piano hinge and key lock will keep all of your code required documents in one safe place. With a 2GB USB flash drive it stores your fire alarm software safely and securely eliminating the occurrences of the software not being on site when technicians arrive to service the system. Along with your fire alarm software you can store your test & inspection documents, service records, manuals & as built drawings for the system. Using a standard USB B connector it allows you to plug in with any standard USB printer cable to upload or download information.

The FAD is designed to hold critical manuals and documents with a durable steel sleeve. It has designated hooks to organize key rings and hold important business cards for easy access and reference. Inside the cover it has a organized note table that allows for documentation for passwords and other critical system information. The steel sleeve can be easily removed to hold a 1.5" three ring binder.

The innovation of a single gang cutout inside the box to implement the Infinity line products with conduit knockout access enables you to provide other system functions for test and inspection. See the complete Infinity product line from Space Age Electronics for single gang electrical product solutions.

Standard Features:

- Installed with a 2 gig digital flash drive with USB B connector
- 2 Key ring hooks to hold system keys
- Business card holder for key contacts
- Overall Dimensions are 12" x 13" tall and 2 ¼ deep
- 16 gauge steel box and cover for security
- Durable powercoat baked on finish other colors available
- Standard ¾"cat 30 key lock other lock assemblies available
- Solid stainless steel piano hinge
- Permanently screened white ink 1" high "Fire Alarm Documents"
- Legend sheet for passwords and system information

NFPA

Made In U.S.A.

ISO 9001
REGISTERED
COMPANY

ADA

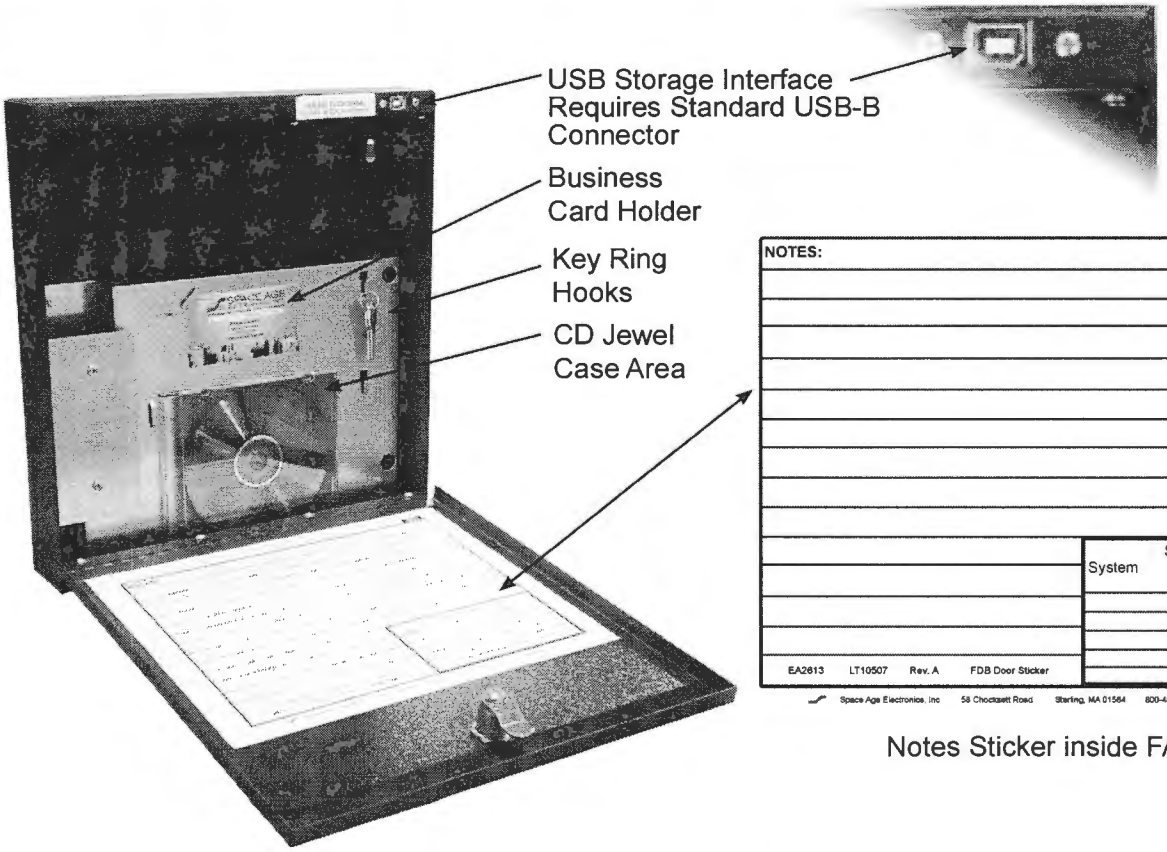
Space Age Electronics, Inc.
www.1sae.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

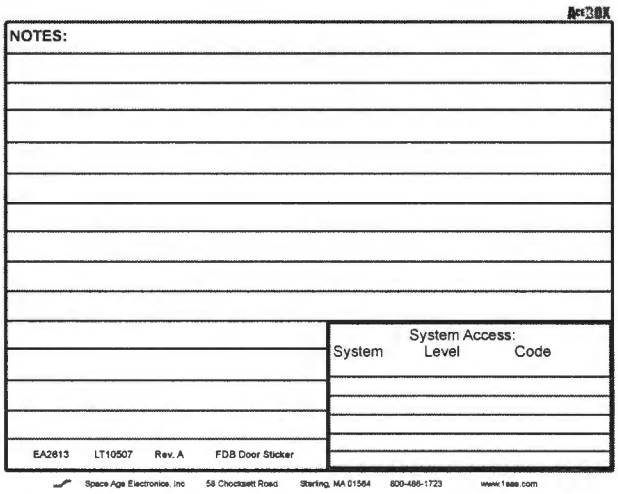
No Excuses, Just Solutions!

SPACE AGE ELECTRONICS, INC.

Specifications:

The Fire Alarm Document Box (FAD) shall be constructed of 16 gauge cold rolled steel, it shall have a red powder coat epoxy finish. The cover shall be permanently screened with 1" high lettering "FIRE ALARM DOCUMENTS" with indelible ink. The access door shall be locked with a ¾" barrel lock and the hinge shall be a solid width 12" stainless steel piano hinge. The FAD enclosure will supply 4 wall mounting holes inside. Inside the enclosure a removable steel sleeve that will accommodate standard 8 ½ x 11 manuals and loose document records that will be protected within the enclosure. A legend sheet permanently attached to the door for system passwords and critical information and inspection notes. The FAD will have permanently and securely mounted inside a minimum of 2GB's digital flash memory drive with a standard USB B connector for uploading and downloading information. The drive shall not be accessible without tools to any person whom gains access to the records. The enclosure shall also provide 2 key ring holders with a location to mount standard business type cards for key contact personell.





Notes Sticker inside FAD Door

Ordering Information:

Part #	Description
SSU00685	**Fire Alarm Storage Cabinet RED**
SSU00686	**Custom screening with your Logo**

Check out our Infinity line eFAD single gang 2 Gig digital storage solutions (IAMEFAD)

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No Excuses, Just Solutions!

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.

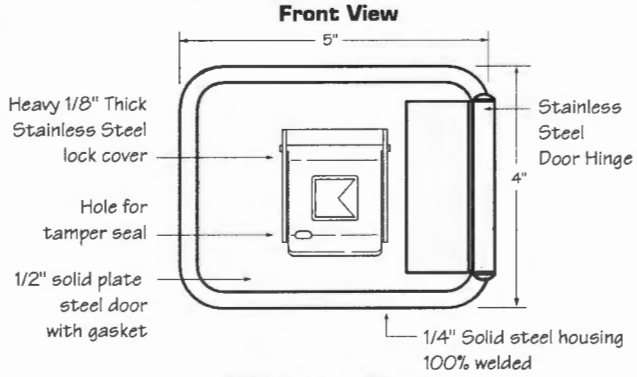
The hinged-door 3200 Series KNOX-BOX is more convenient than the lift-off door version because it allows single-handed operation and opened or closed, it's all one unit.

Features and Benefits

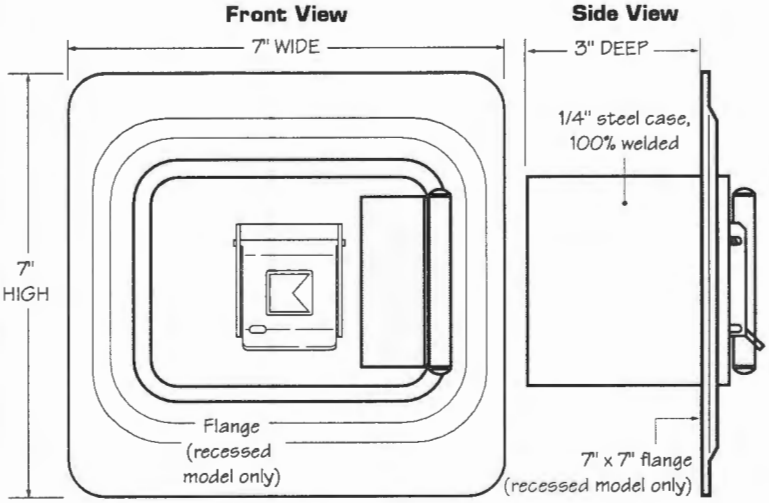
- Holds up to 10 keys or 1 access card in interior compartment
- Ensures high security. Box and lock are UL® Listed
- Includes a Knox-Coat® proprietary finishing process that protects Knox products up to four times better than standard powder coat
- Resists moist conditions with a weather resistant door 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.

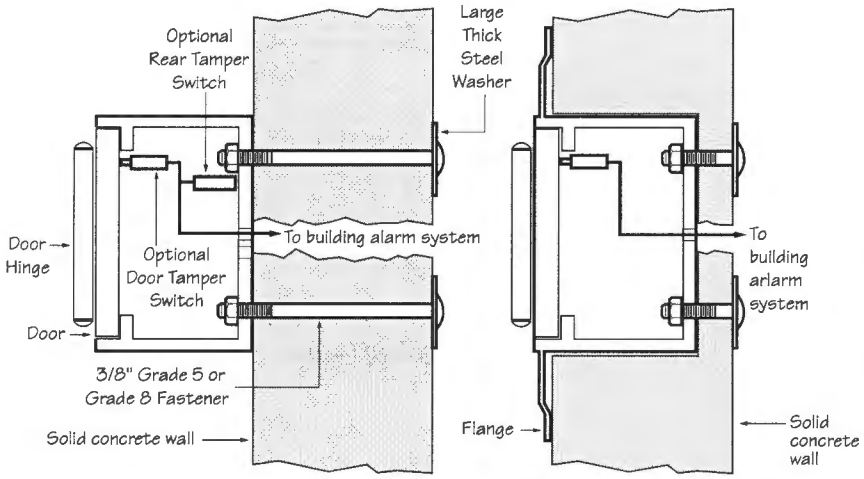
Exterior Dimensions:	Surface mount body- 4"H x 5"W x 3 1/4"D Recessed mount flange- 7"H x 7"W
Lock:	UL Listed. Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.
Finish:	Knox-Coat® proprietary finishing process
Colors:	Black, Dark Bronze or Aluminum
P/N:	3200 Series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

KNOX COMPANY • 1601 W. Deer Valley Road, Phoenix, AZ 85027 • (800) 552-5669 • (623) 687-2300 • Fax (623) 687-2299 • Web: www.knoxbox.com • E-mail: info@knoxbox.com

KNOX®
Serving Fire Departments Since 1975

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

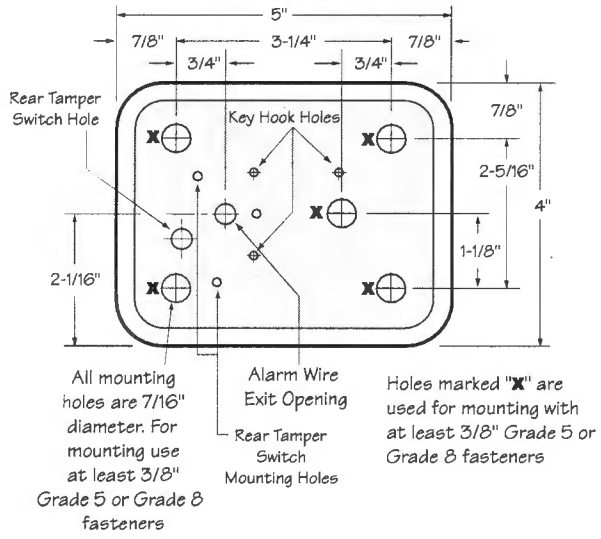
Suggested minimum mounting height
6 feet above ground



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

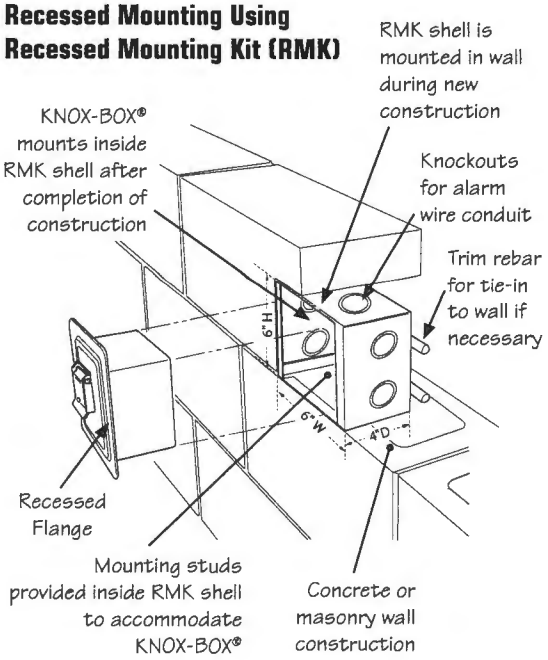
The optional Recessed Mounting Kit is for use in new concrete or masonry construction only. The kit includes a shell housing and mounting hardware to be cast-in-place. The KNOX-BOX is mounted into the shell housing after construction is completed.

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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Simplex

Multi-Application Peripherals and Accessories

UL Listed
CSFM Approved*

Circuit Protection
2081-9044
Overvoltage Protector

FEATURES

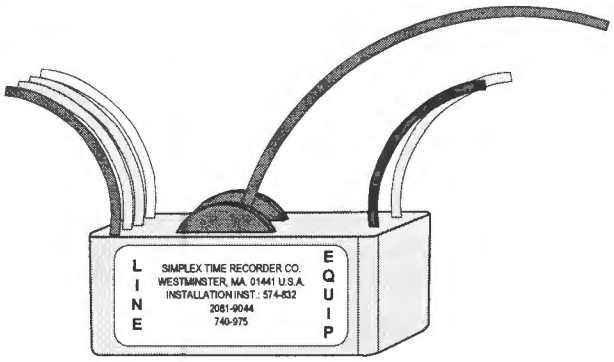
- **UL listed to Standard 1459, *Standard for Telephone Equipment***
- **Compatible with the requirements of Article 800 of the 1999 National Electrical Code® (NFPA 70)**
- **Designed specifically for protection of fire alarm circuits including:**
  - DC power (200 mA maximum)
  - Data communications
  - Local energy city circuit connections
  - Refer to page two for application details
- **Multiple stages of protection include:**
  - Line-to-Line protection
  - Line-to-Earth protection
- **Rugged epoxy encapsulated package**

DESCRIPTION

Circuit Protection. Electrical transients caused by lightning or by disturbances on high voltage power lines can cause damage to low voltage fire alarm circuits. Proper application of 2081-9044 Overvoltage Protectors can minimize the energy from those electrical transients to a level that can be safely handled by the circuits requiring protection. This protection is most effective when placed at the locations where the circuits leave and enter buildings.

The 2081-9044 Overvoltage Protector provides multiple stages of protection against electrical transients. It has a small package size allowing it to be easily mounted at the location that achieves maximum protection.

Other Circuit Types. Protection for other circuit types is available, contact your local Simplex representative.



→ 2081-9044 Overvoltage Protector

Operating Specifications

Line-to-Line Voltage Rating		Continuous: 38 VDC, 28 VAC RMS Clamping: 47 V typical
Line-to-Earth Voltage Rating		Continuous: 45 VDC, 35 VAC RMS Clamping: 56 V typical
Shield-to-Earth Voltage Rating		Continuous: 48 VDC, 33 VAC RMS Clamping: 75 V typical
Line-to-Line Capacitance		0.006 µF typical
Continuous Current Rating		200 mA maximum
Series Resistance		3 Ω/line
Response Time	Line-to-Line	<1 Nanosecond (10^{-9})
	Line-to-Earth	<25 Nanosecond (10^{-9})
Maximum Current	Line-to-Line	2000 A (10 x 50 µsec pulse)
	Line-to-Earth	2000 A (8 x 20 µsec pulse)
	Shield-to-Earth	5000 A (10 x 50 µsec)

Mechanical Specifications

Dimensions	2 7/16" W x 1 3/8" D x 1 1/16" H (62 mm x 35 mm x 27 mm)
Package	Beige epoxy encapsulated
Electrical box requirement	4" (102 mm) square box, 2 1/8" (54 mm) minimum depth
Temperature Rating	32° F to 120° F (0° C to 49° C)
Humidity Rating	10-95% RH, at 30° C
Signal Leads	Color coded, 18 AWG, 10" long (245 mm)
Ground Lead	Green, 14 AWG, 10" long (245 mm)

* 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 7300-0026:171 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Listings shown are inclusive, contact Simplex for any additional information.

2081-9044 Overvoltage Protector, Simplex Fire Alarm Control Panel Application Reference

Control Panel	Circuit Type	Wiring Distance and Requirements	
4020, 4100, and 4120 Series	MAPNET II® Communications	Two, 2081-9044's, 1500 ft (765 km) maximum Four, 2081-9044's, 500 ft (459 km) maximum	Assumes all communications pass through the protectors
	Remote Unit Interface (RUI)		
	MAPNET II ZAM Power	3270 ft (1 km) maximum, 200 mA maximum	
4010, 4020, 4100, and 4120 Series	4120 Network, Wired and Modem Communications	Maximum of two per node-to-node connection, no impact to total distance limit	
	Local Energy City Circuit*	3270 ft (1 km) maximum	
4010 Series	IDNet™ and N2 Communications	Two, 2081-9044's, 2500 ft (765 km) maximum Four, 2081-9044's, 1500 ft (459 km) maximum	Assumes all communications pass through the protectors
	IDNet Monitor ZAM IDC	1400 ft (428 m) maximum	**Underground wiring** must be in a wiring trough that is separate from commercial power distribution wiring. **Overhead wiring** must be run on poles separate from those supporting any commercial power distribution wiring. Wiring shall be run in parallel with the commercial power distribution wiring and be separated by a minimum distance of either 100 ft (30 m) or the maximum span between any two adjacent poles of either the system's circuit or the commercial power distribution circuit.
	IDNet Supervised IAM Zone	400 ft (122 m) maximum	

* For Reverse Polarity City Circuits, use 2081-9045 (refer to data sheet S2081-0007).

EXTERNAL WIRING REQUIREMENTS

Fire alarm system wiring that is run external to the building and is protected by 2081-9044 Overvoltage Protectors shall be installed in accordance with the individual system component's installation instructions including properly grounded, twisted and shielded wire pairs, and observance of the following precautions.

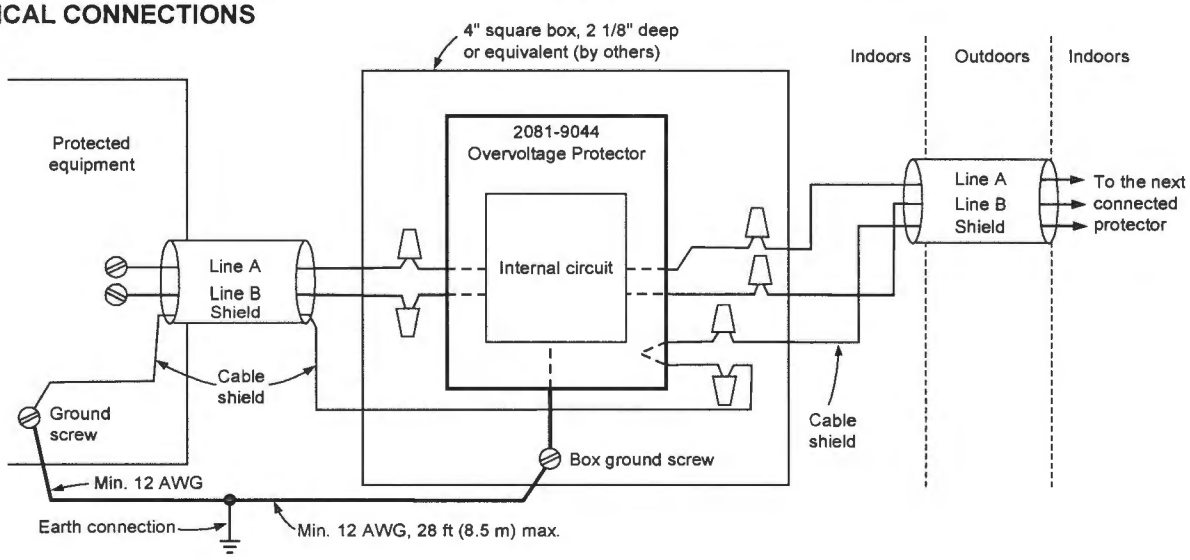
Location. To ensure optimized protection, the 2081-9044 Overvoltage Protector shall be located as close as possible to the point at which the circuits leave or enter the buildings and installed in dedicated metallic electrical boxes.

Wiring distance is limited to one contiguous property. The total maximum wire length is determined by the individual application's allowable limit as specified with overvoltage protectors, but must not exceed 3270 ft (1 km).

The grounding conductor shall be 12 AWG with a maximum length of 28 ft (8.5 m), run in as straight a line as possible and connected to the building grounding electrode system per Article 800-40 of NFPA 70, the *National Electrical Code*.

Further information can be found in Installation Instructions 574-832.

TYPICAL CONNECTIONS



S2081-0016-1 4/00

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*UL, ULC, CSFM Listed**

System Accessories

Circuit Protection; Model 2081-9028 Isolated Loop Circuit Protector (ILCP)

Features

Isolated Loop Circuit Protector (ILCP) for up to 5 A of DC or audio current:

- Low impedance design minimizes voltage drop
- For internal or external applications (refer to page 2 for external wiring requirements)
- Refer to specific panel field wiring diagrams for additional application information
- UL listed to Standard 497B
- See Note 1 below for additional application reference
- For lower current ILCP applications (up to 200 mA), refer to Model 2081-9027 on data sheet S2081-0007

Operation is compatible with:

- DC notification appliance circuits (NACs)
- Speaker circuit NACs (25 VRMS)
- Other circuit types (see Note 2 below)

Multiple stages of protection for DC and audio circuits:

- Line-to-Line Protection
- Line-to-Earth protection

Rugged epoxy encapsulated package

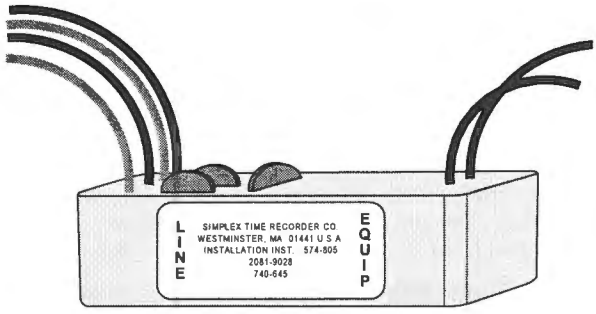
Description

Electrical transients caused by lightning or by disturbances on high voltage power lines are conditions that require low voltage wiring circuits to be adequately protected. This protection is most effective when placed at the location where such circuits leave or enter the building.

Transient Protection. The 2081-9028 Isolated Loop Circuit Protector (ILCP) is designed to protect Simplex® Fire Alarm circuits from those electrical transients induced on wire runs that are routed external to the building. Because of its small package size, it can be easily mounted at the location that achieves maximum protection.

Note 1: Overvoltage Protector Applications. Model 2081-9028 is for use as an Isolated Loop Circuit Protector. This is different from operation as an Overvoltage Protector. For overvoltage applications, refer to Overvoltage Protector model 2081-9044 which is listed to UL Standard 1459, rated for up to 200 mA, and documented on data sheet S2081-0016.

Note 2: Operation with other Circuit Types. Performance of this device has been quantified for use with other circuit types for specific applications where its low resistance is desired. Contact your local Simplex product supplier for application guidance.



→ 2081-9028 Isolated Loop Circuit Protector

Specifications

Operating Specifications

Line-to-Line Rating	38 VDC, 28 VAC RMS
Line-to-Ground Rating	
Shield-to-Ground Rating	48 VDC, 33 VAC RMS
Continuous Current Rating	5 A
Series Resistance	0.1 Ω/line
Series Inductance	68 µH/line
Shunt Capacitance	0.017 µF
Response Time	<1 Nanosecond (10^{-9}) line-to-line and line-to-earth
Maximum Current Line-to-Line and Line-to-Earth	2000 A (8 x 20 µsec pulse)
Maximum Current Shield-to-Earth	5000 A (10 x 50 µsec)

Mechanical Specifications

Dimensions	3-3/8" W x 2" D x 1" H (86 mm x 50 mm x 25 mm)
Package	Epoxy encapsulated, beige
Electrical box requirement	4" (102 mm) square box, 2-1/8" (54 mm) minimum depth
Wire Leads	Color coded, #18 AWG, 8" long (203 mm)

* 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 7300-0026:171 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. This product was not FM or MEA (NYC) approved as of document revision date. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.

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			

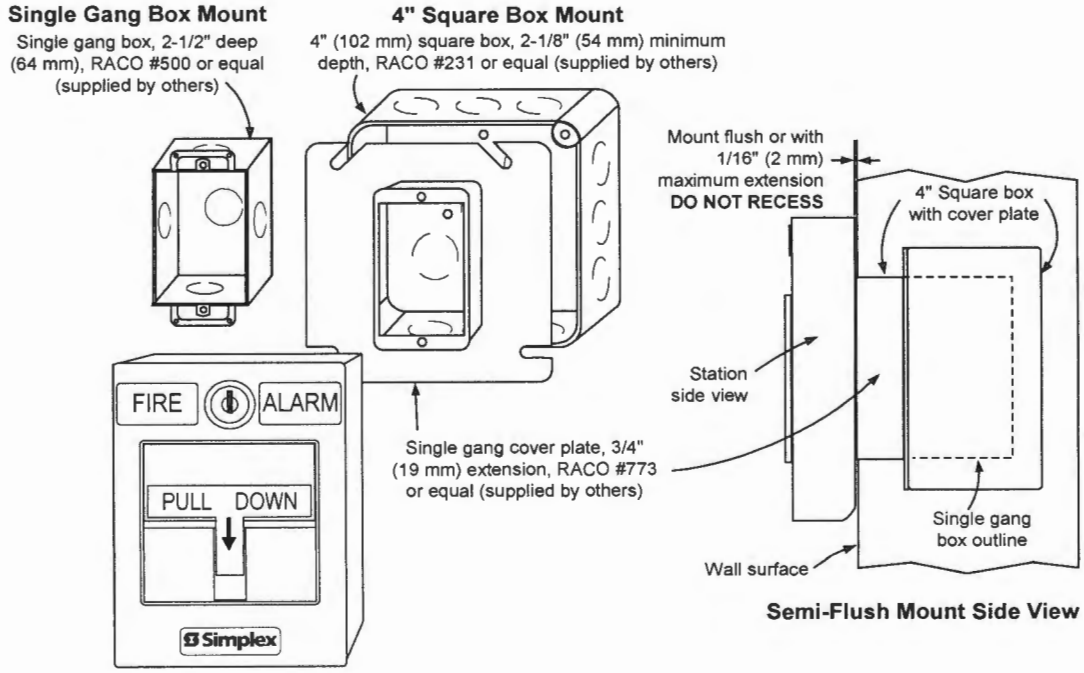
Accessories

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	

Specifications

Power and Communications	IDNet or MAPNET II communications, 1 address per station
Address Means	Dipswitch, 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)

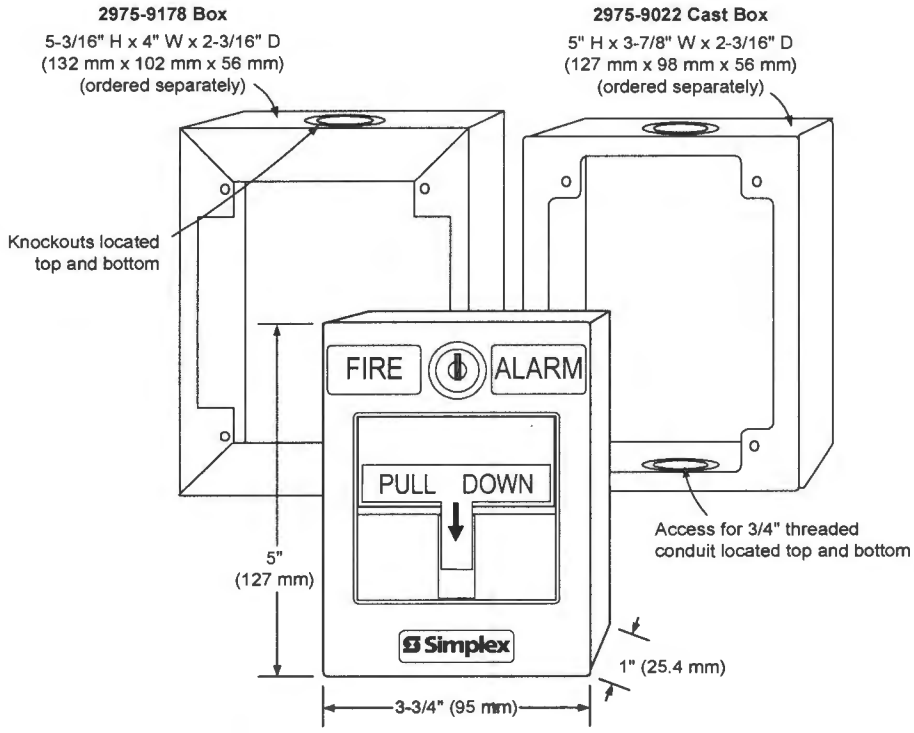
Addressable Manual Station Semi-Flush Mounting



Addressable Manual Stations Surface Mounting

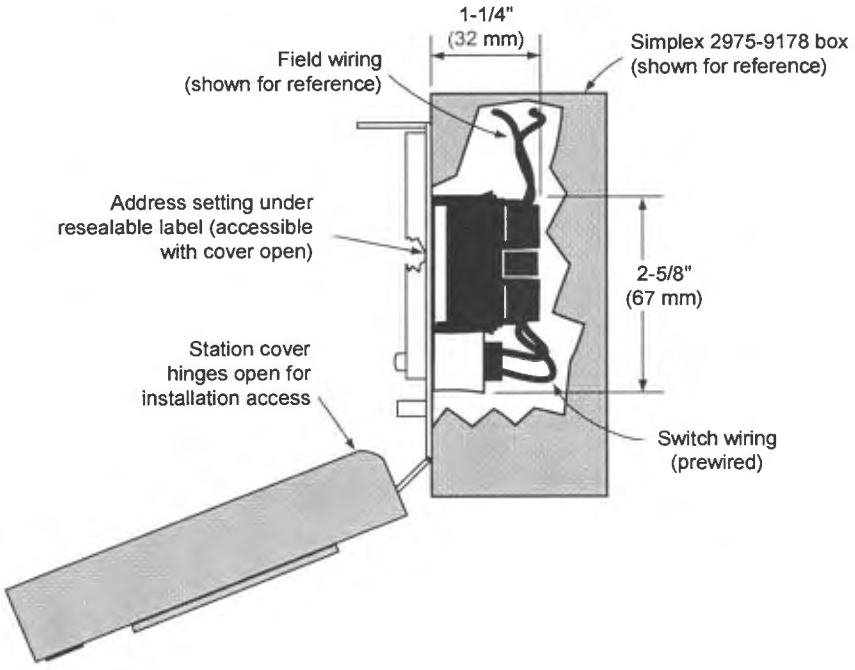
Preferred Mounting. For surface mounting of these addressable manual stations, the preferred electrical boxes are shown in the illustration to the right.

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



4099 Series Addressable Manual Station

Surface Mount Side View with Internal Detail



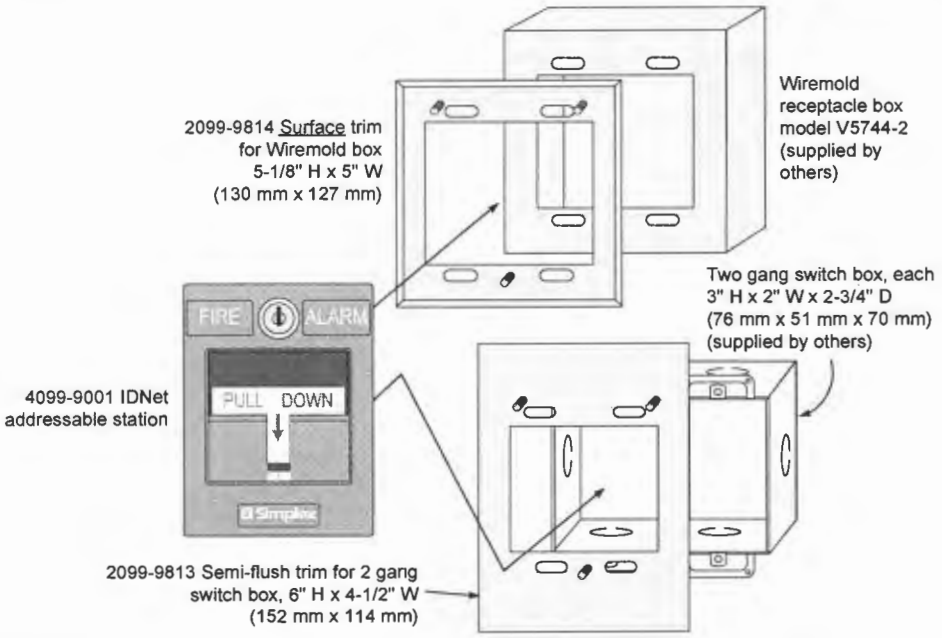
Application Reference

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

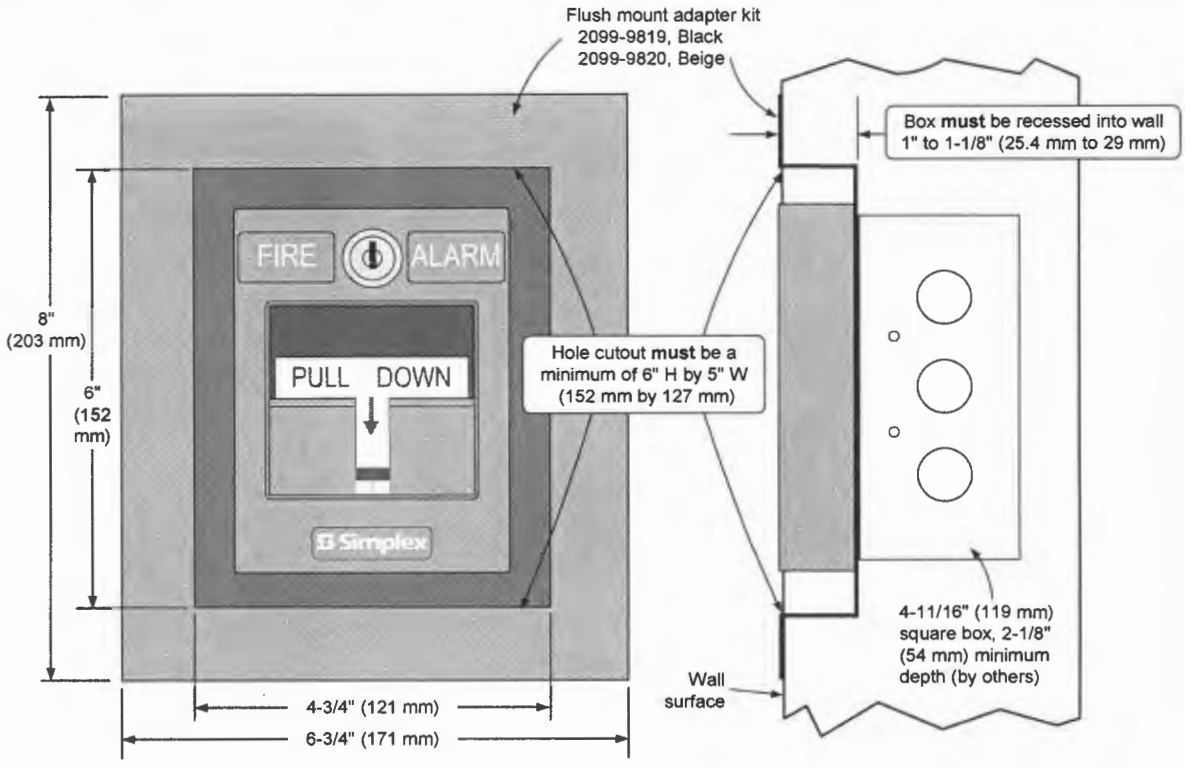
1. Stations shall be located in the normal path of exit and distributed in the protected area such that they are unobstructed and readily accessible.
2. Mounting shall be with the operable part not less than 3-1/2 ft (1.1 m) and not more than 4-1/2 ft (1.37 m) above floor level.
3. At least one station 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



Front View **Side View**

Simplex

TrueAlarm® 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:

- 4010 and 4100U 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%

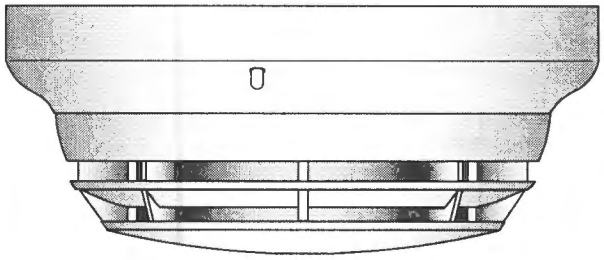
General features:

- 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 Safety Products Westminster.



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.

** TrueAlarm analog sensors are protected by one or more of the following U.S. Patents: 5,155,468; 5,173,683; 5,400,014; 5,543,777; 5,710,541; D383,407; D388,352; D392,573. MAPNET II and IDNet addressable communications designs are protected by U.S. Patent No. 4,796,025.

TrueAlarm 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.

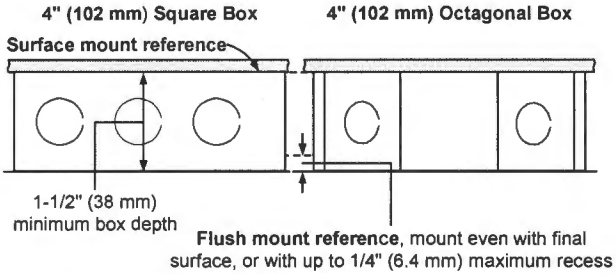
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing 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)

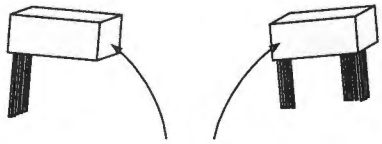
Without relay: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

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



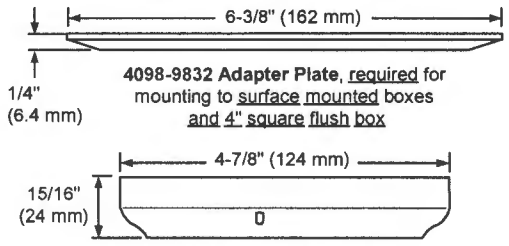
2098-9737 Relay (mounts in base electrical box or remotely)

4098-9822 Relay (mounts in base electrical box)



Relay Size: 2-1/2" X 1-1/2" X 1" (3.75 cubic inches) (64 mm X 38 mm X 25.4 mm)

NOTE: Review total wire count, wire size, and accessories being wired to determine required box volume.



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

TrueAlarm 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:

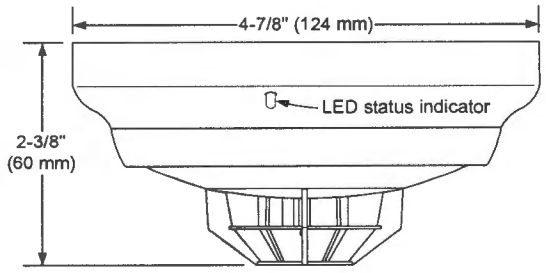
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

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.*



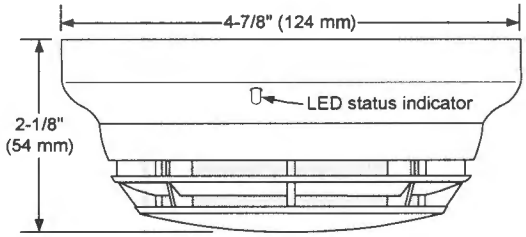
4098-9733 Heat Sensor with Base

WARNING: 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.

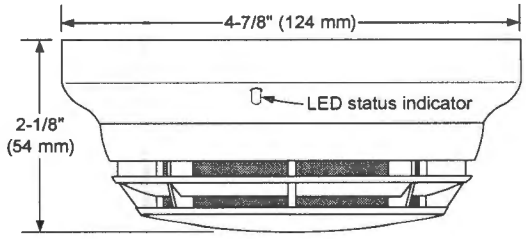


4098-9714 Photoelectric Sensor with Base

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 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*

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)	

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

* Refer to Installation Instructions 574-707 and Application Manual 574-709 for additional information.

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 = 0-2000 ft/min (0-610 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

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, and 4100U fire alarm control panels for IDNet communications
- Model Series 4100/4100U, 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:

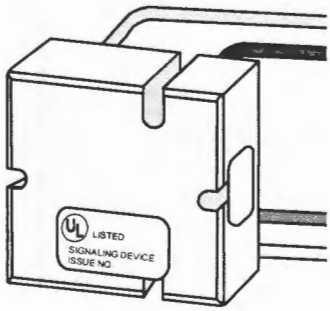
- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

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

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.

* 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.

** IDNet and MAPNET II addressable communications are protected under U.S. Patent Nos. 4,796,025; 5,966,002; and 6,034,601.

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

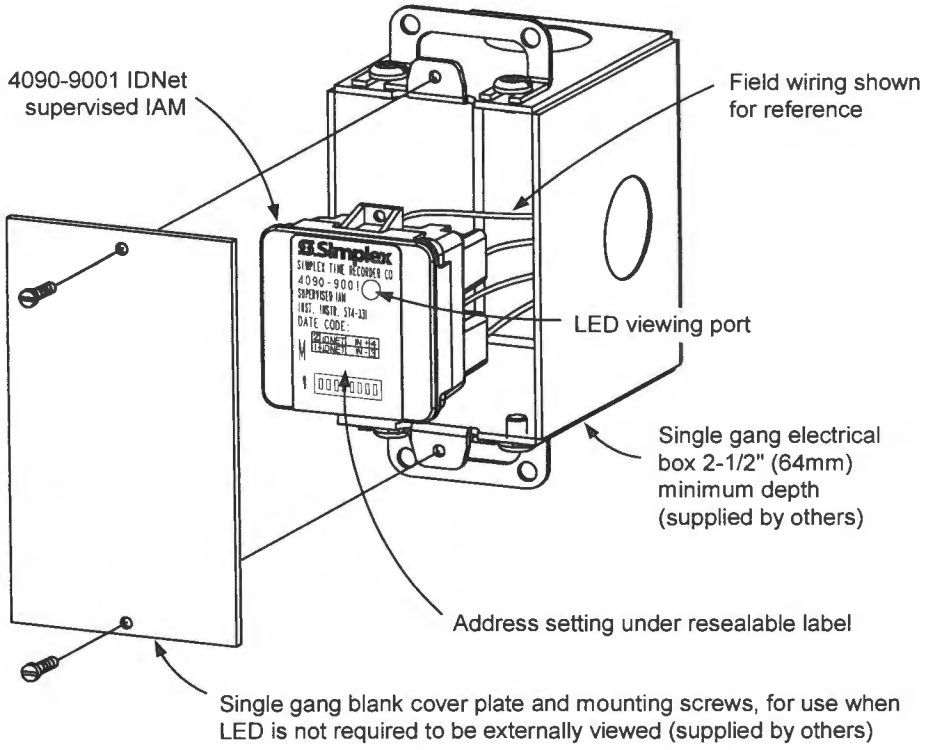
Wiring Distances

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)

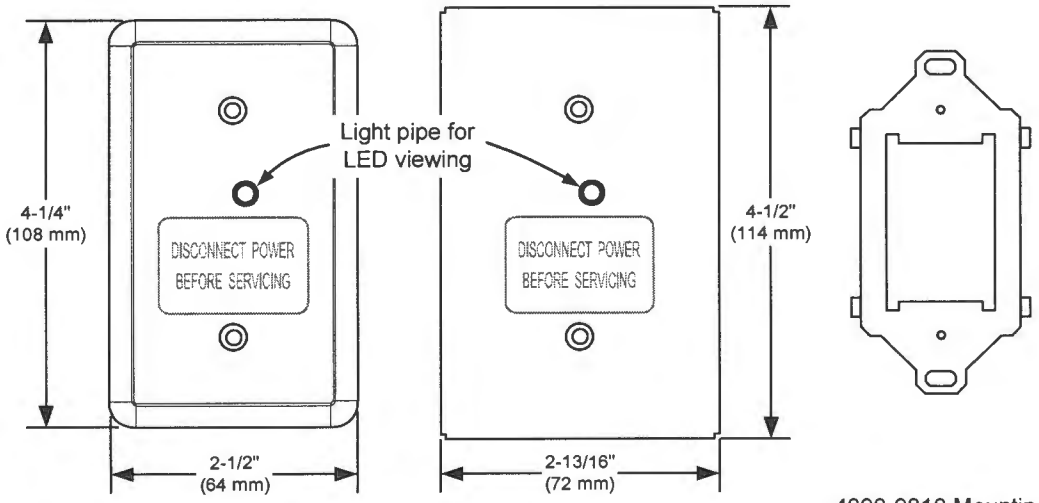
Mechanical

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

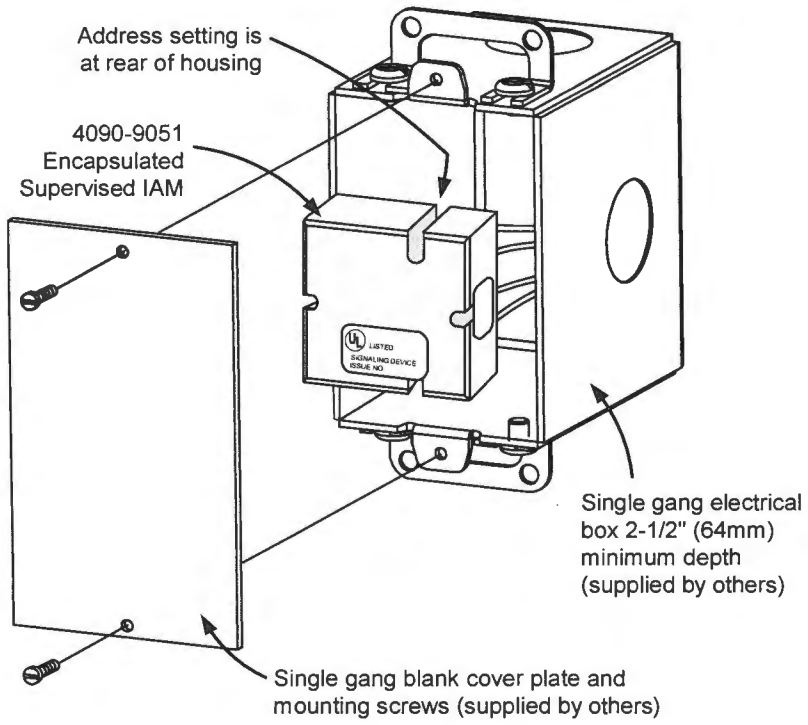
4090-9807, Trim plate for surface mounted box

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



Simplex

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

Multi-Application Peripherals

IDNet™ Communicating Devices
Model 4090-9002 Relay IAM

Features

Individual Addressable Relay Module (Relay IAM):

- IDNet addressable control for use with Simplex® fire alarm control panel models 4100ES, 4100U, 4010ES and 4010
- A single addressable point provides control and status tracking of a Form "C" contact
- Low power latching relay design allows IDNet communications to supply both data and module power

Compact, sealed construction:

- Enclosed design minimizes dust infiltration
- Mounts in standard 4" (102 mm) square 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

UL listed to Standard 864

Description

IDNet Relay IAMs allow fire alarm control panels to control a remotely located Form "C" contact using IDNet addressable communications for both data and module power. Typical applications would be for switching local power for control functions such as elevator capture, or control of HVAC components, pressurization fans, dampers, etc. Relay status is also communicated requiring only one device address.

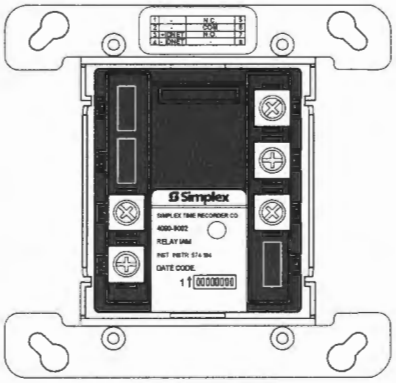
Product Selection

Model	Description
4090-9002	Relay IAM

Optional Trim Plates

Model	Description	
4090-9801	For semi-flush mounted box	Trim plate, galvanized steel, with LED viewing window; includes mounting screws
4090-9802	For surface mounted box	

* 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 7300-0026:223 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 Series IDNet Relay IAM Package
(shown approximately 1/2 size)

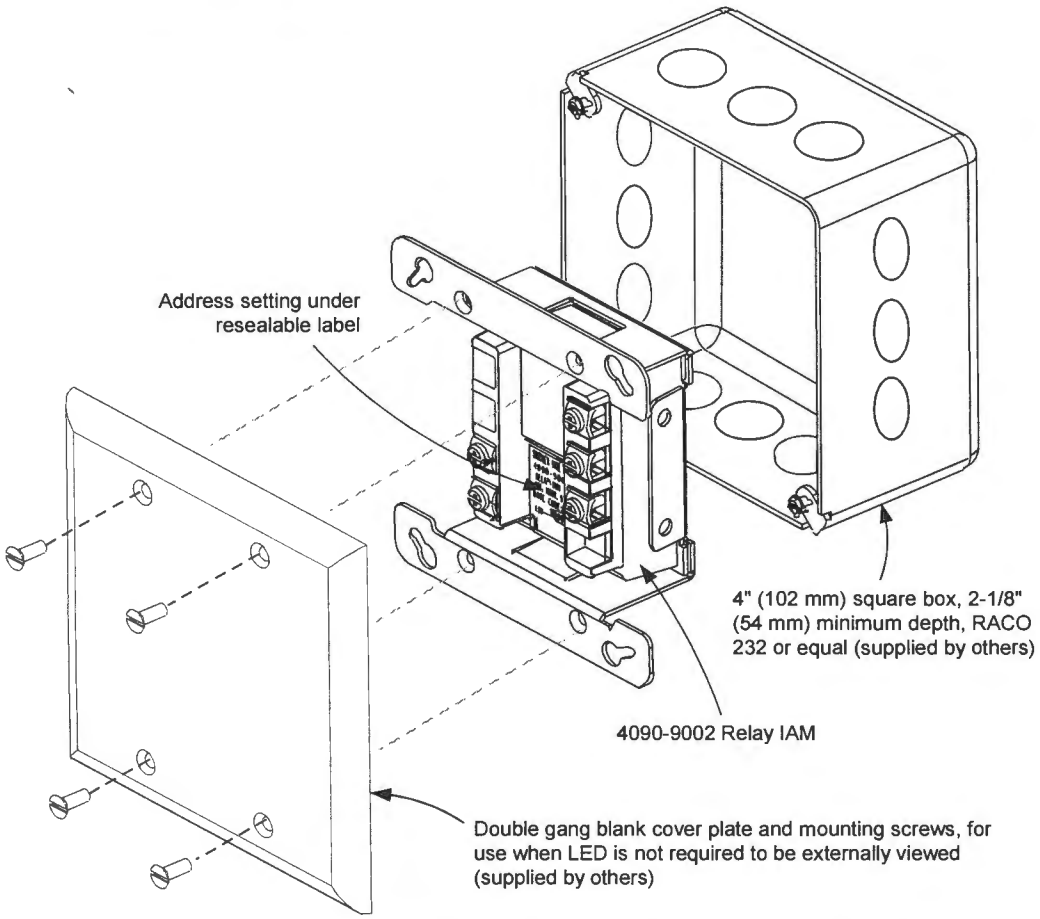
Specifications

Communications	4100ES, 4100U, 4010ES or 4010 IDNet communications, 1 address per device	
Relay IAM Power	Supplied by IDNet communications	
Contact Ratings* (not rated for incandescent switching)		
Type	Form C, SPDT	
Power-Limited	2 A @ 24 VDC, resistive	from listed fire alarm supply
	1 A @ 24 VDC, inductive	
Nonpower-Limited	0.5 A @ 120 VAC, resistive	

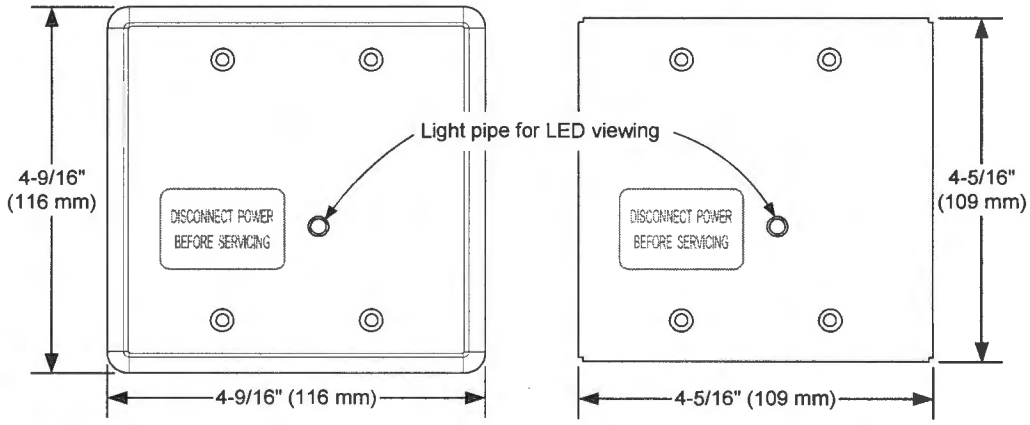
* Provide circuit fusing and transient suppression as required per application. DC inductive loads can typically be diode suppressed; 120 VAC loads may require RC networks or varistors, depending on device type. Refer to Installation Instructions 574-184 for additional information.

Wire Connections	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 to 2.08 mm^2)
IDNet Wiring Reference	Up to 2500 ft (762 m) from control panel
	Up to 10,000 ft (3048 m) total wiring distance (including T-Taps)
	Compatible with Simplex 2081-9044 Overvoltage Protectors
Dimensions	4-1/8" H x 4-1/8" W x 1-3/8" D (105 mm x 105 mm x 35 mm)
Housing Material	Black thermoplastic
Mounting Plate	Sheet metal, galvanized
Temperature Range	32° to 120° F (0° to 49° C), intended for indoor operation
Humidity Range	Up to 93% RH at 100° F (38° C)

Relay IAM Mounting Information



Mounting Reference, Double Gang Blank Cover Plate



Optional Trim Plates for Visible LED

INSERT 4

NOTIFICATION APPLIANCES & ACCESSORIES

Simplex®

System Accessories, LCD Annunciators

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

4606-9101 LCD Annunciator for 4010, 4006, and 4008 Fire Alarm Control Panels

Features

Remote LCD annunciator for use with Simplex® model 4010, 4006, and 4008 fire alarm control panels

LCD readout provides:

- Two lines of 40 characters each
- Wide viewing angle, super-twist design
- LED backlighting

Control switches and status LEDs for:

- Alarm, supervisory, or trouble acknowledge (keyswitch access controlled)
- Alarm silence
- System reset

Three programmable LED indicators:

- Two LEDs are selectable as red or yellow
- One LED is selectable as green or yellow
- With provisions for custom labeling

Additional features:

- Information is transmitted over a single twisted, shielded pair; separate wiring is required for 24 VDC control panel power
- Tone-alert sounder provides local audible indication
- Lamp and LCD are functionally tested each time the keyswitch is turned on
- Mounts flush on standard 6-gang electrical box

Mounting and trim options:

- Surface mount box model 2975-9217 (ordered separately)
- Brushed aluminum trim model 4603-9111 (ordered separately)

Description

Local Annunciation. 4606-9101 LCD Annunciators allow compatible fire alarm control panels to provide information and control switches at convenient locations away from the control panel. The LCD is an 80 character, back-lit, alphanumeric display with information presented in clear and descriptive English. Typical content includes: point status (alarm, trouble, etc.), alarm type (smoke detector, manual station, etc.), number of system alarms, supervisory conditions, troubles, and custom location labels up to 40 characters long. (Some 4006/4008 messages are limited to 20 characters, refer to the control panel documentation for additional information.)

4606-9101 LCD Annunciator

Description *(Continued)*

Communications. Data communications require a single twisted, shielded pair that supports other annunciators on the same communications channel. Model 4010 Series panels control up to six annunciators; model 4006 and 4008 Series panels control up to four annunciators.

Indications. Alarm, Supervisory, and Trouble conditions are also indicated by dedicated LEDs and a tone-alert audible indication. Each condition has a dedicated acknowledge push-button switch that silences the tone-alert but leaves the LED on until all conditions in that category are restored to normal.

Activity Scrolling. Repeated operation of the appropriate acknowledge switch will scroll the LCD display showing activity in the sequence of occurrence. The internal tone-alert also sounds to indicate the operation of any of the push-button switches.

Operation

Keyswitch Access. All switches on the annunciator are controlled by the "ENABLE" keyswitch with a key that is removable only in the disabled position.

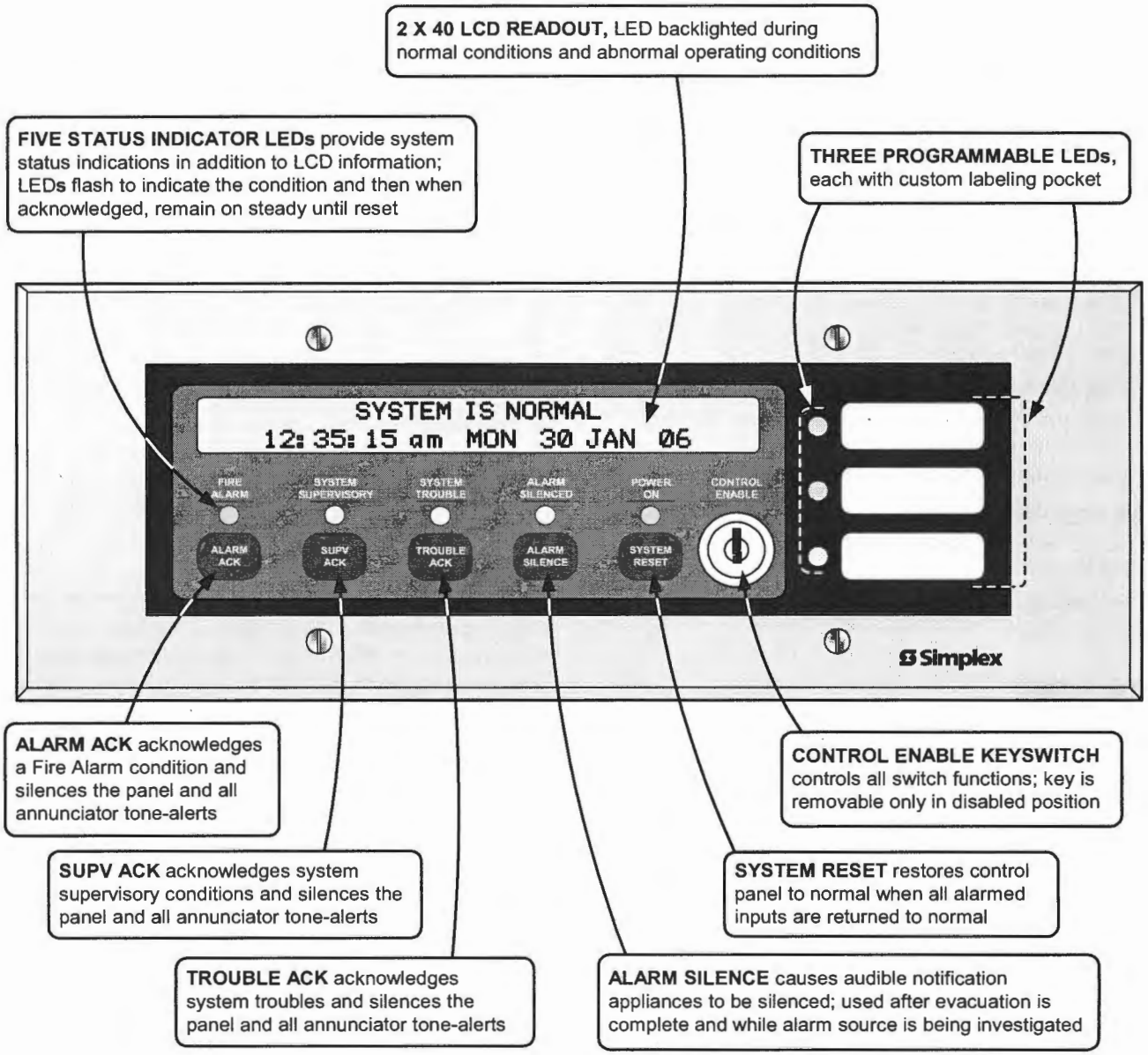
Enabled Operations. When enabled, notification appliances can be deactivated by pressing the "ALARM SILENCE" switch. Pressing the "SYSTEM RESET" switch restores the system to normal operation. When system activity is normal, the LCD displays the time, date, and "SYSTEM IS NORMAL."

* 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 7120-0026:225 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.

Product Selection

Model	Description	
4606-9101	Remote LCD Annunciator with beige trim	Refer to specifications on page 3 for additional details
4603-9111	Brushed aluminum trim option	
2975-9217	Matching surface mount box; ivory finish	
4081-9011	Line matching resistor harness; 100 Ω, 1/2 W; (reference no. 733-974)	
2081-9044	Overvoltage protector; required where annunciator communications and power wiring exits and enters a building; refer to data sheet S2081-0016 for details	

4606-9101 Operator Information



4606-9101 LCD Annunciator Specifications

General Operating Specifications	
Voltage	18 to 32 VDC, system supplied
Normal Operating Current	110 mA (with LED backlighting on)
Battery Standby Current	65 mA (during battery backup, LED backlighting is turned off after 30 seconds without switch activity)
Alarm Current	140 mA maximum (LED backlighting is on and tone-alert is sounding)
Operating Temperature Range	32° to 120° F (0° to 49° C)
Operating Humidity Range	Up to 93% RH, non-condensing at 100° F (38° C)

Communications			
For 4010 Panels*	Type	N2 external annunciator communications line	
	Capacity	Up to 6 annunciator modules total, 4606-9101 or 4605 series, 24 point I/O modules	
For 4006 & 4008 Panels*	Type	N2 communications format but with different capacity	
	Capacity	Up to 4 annunciator modules total; compatible with 4606-9101, 4610-9111, and door mounted LED annunciator	
Wiring Requirements	Data	Single twisted, shielded pair, 18 AWG (0.82 mm^2)	
	Power and Earth	18 to 12 AWG (0.82 mm^2 to 3.31 mm^2) wires for 24 VDC system power and Earth ground for electrical box (ground per local code)	
Distance	Bus-style wiring	Up to 4000 ft (1219 m); 0.58 µF (580 nF) maximum capacitance; 35 Ω maximum resistance	
	"T-Tap" wiring	Up to 10,000 ft (3048 m) total wiring; up to 2500 ft (762 m) to farthest device	
Line Matching Resistor	Bus-style wiring	Connect one at panel and one at end of line	100 Ω, 1/2 W; PID 4081-9011; (part number 733-974)
	"T-Tap" wiring	Connect one at panel and one at farthest device	

Mounting Information		
Trim Dimensions		4-1/2" H x 11-13/16" W (114 mm x 300 mm)
Assembly Depth		1-5/16" (33 mm), 1-1/2" at terminal block location (38 mm)
Standard Trim Finish		Steel, painted beige
4603-9111, Optional Trim		Brushed aluminum (ordered separately)
Boxes for Flush Mounting (supplied by others)	Masonry boxes	Six-gang box, 2-1/2" (64 mm) deep minimum RACO # 960, 2-1/2" deep or RACO # 965, 3-1/2" (89 mm) deep or equal
	Single gang boxes	Six, single gang boxes, 3-1/2" (89 mm) deep minimum, RACO # 600 or equal
	Box selection note	Conduit entrance is box dependent, refer to additional mounting information on page 4 and Installation Instructions 574-188

2975-9217, Surface Mount Box Option** (ordered separately)	
Dimensions	12" W x 4-5/8" H x 1-3/4" D (305 mm x 117 mm x 44 mm)
Finish	Painted steel, ivory finish

* Refer to control panel data sheets S4010-0001, S4006-0001, and S4008-0001 for additional information.

** Reference Wiremold box number V5748-6.

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 — 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)
4905-9931	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	5-1/8" H x 5" W x 1-1/2" D (130 mm x 127 mm x 38 mm)

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 — 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)

* UL listed by Space Age Electronics Inc.

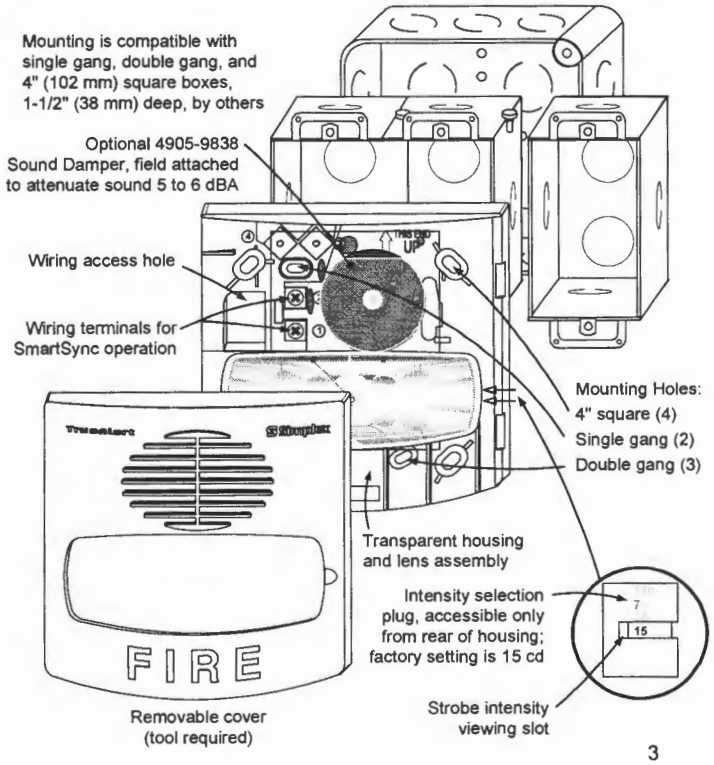
A/V Specifications

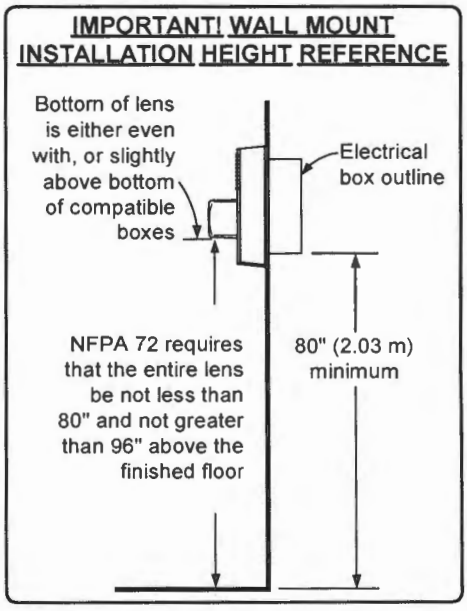
Wall Mount or Ceiling Mount, Common Specifications						
Rated Voltage Range			Regulated 24 DC; see Note 1 below			
Flash Rate and Synchronized NAC Loading			1 Hz; with up to 35 synchronized strobes maximum per NAC			
Environmental; Temperature and Humidity			32° to 122° F (0° to 50° C); 10% to 93%, 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:

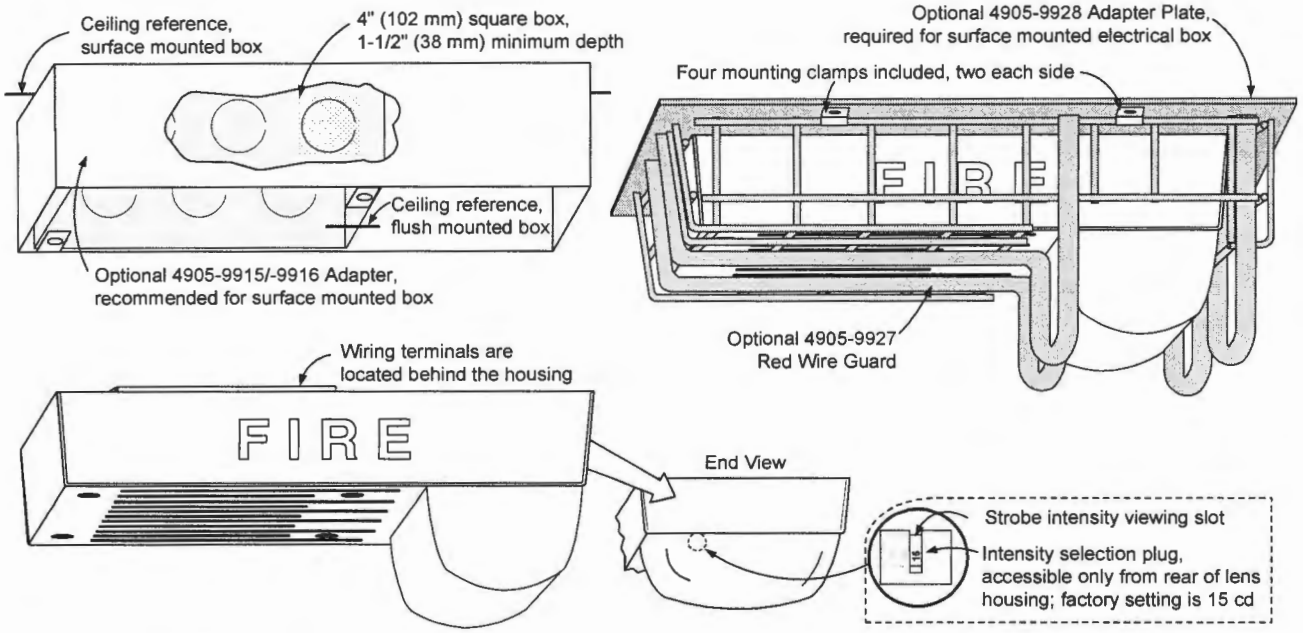
1. "Regulated 24 DC" refers to the voltage range of 16 to 33 VDC per UL Standard 1971, *Signaling Devices for the Hearing Impaired*, changes effective May 1, 2004. This voltage range is the absolute operating range. Operation outside of this range may cause permanent damage to the appliance. Please note 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

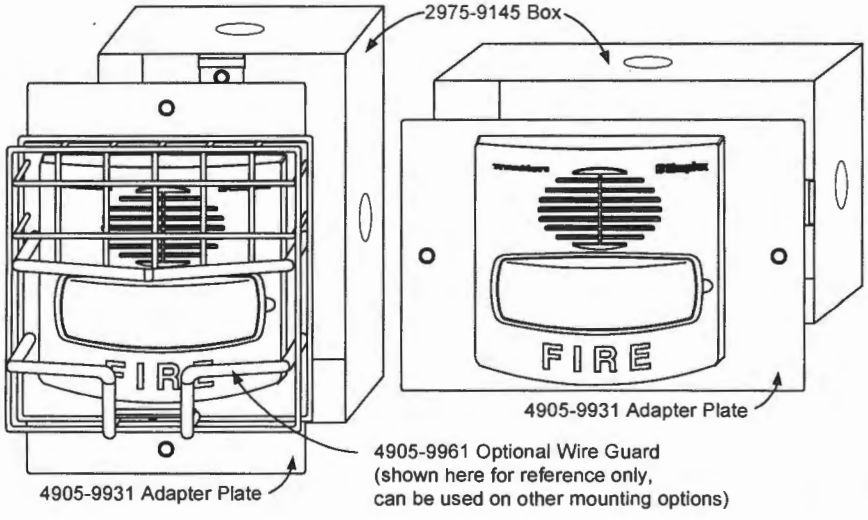




Ceiling Mount A/V and Guard Installation Reference



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



Surface Mounting Reference with Optional Adapter Skirt and Optional Wire Guard