COMPTON COLLEGE – STUDENT HOUSING

Fire Alarm Cutsheets

Features

Figure 1: 4100ES Cabinets are available with one, two, or three bays (two bay cabinet with ES Touch Screen Display shown)

Master Controller (top) bay:

- Models available with Color ES Touch Screen Display (shown in Figure 1), Monochrome 2 line x 40 Character Display, or Monochrome InfoAlarm Display
- 32-Bit Master Controller with color-coded operator interface including raised switches for high-confidence feedback
- Dual configuration program CPU, convenient service port access, and capacity for up to 3000 addressable points
- CPU assembly includes 2 GB dedicated compact flash memory for on-site system programming and information storage
- ES Power Supply (ES-PS) and charger with onboard alarm relay, programmable auxiliary power output and provisions for one 4 in. x 10 in. or two 4 in. x 5 in. compatible option cards such as IDNet2 addressable device interface, Conventional NAC or Addressable IDNAC SLC modules; refer to 579-1288 installation instructions for additional details
- Upgrade kits are available for existing control panels

Network compatibility:

Compatible with Simplex ES Net or 4120 Fire Alarm Networks

Standard addressable interfaces include:

- 250 point addressable IDNet 2 SLC channel with electrically isolated dual short circuit isolating loops that supports TrueAlarm analog sensors and IDNet communications monitoring and control devices
- Remote annunciator module support through RUI+ (remote unit interface) communications port

Optional modules include:

- Building Network Interface Module (BNIC) for Ethernet connectivity options, refer to data sheet *S4100-0061*
- Electrically isolated output IDNet 2 (two loop) and IDNet 2+2 (four loop) modules with short circuit isolation output loops allowing use with either shielded or unshielded, twisted or untwisted single pair wiring
- Fire Alarm Network Interfaces, DACTs, city connections, and up to five RS-232 ports for printers and terminals
- Compatible with Connected Services Gateway to support central station communication and enable SafeLINC Cloud Services, refer to datasheet *S2080-0091*
- MAPNET II addressable device modules and MAPNET II quad isolator modules
- IDNAC signalling line circuits (SLCs) for addressable appliance control
- Alarm relays, auxiliary relays, additional power supplies, IDC modules, NAC expansion modules
- Service modems, VESDA Air Aspiration Systems interface, ASHRAE BACnet Interface, TCP/IP Bridges
- LED/switch modules and panel mount printers
- Emergency communications systems (ECS) equipment; 8 channel digital audio or 2 channel analog audio
- 8-point zone/relay module, each point is selectable as an IDC input or relay output. Class A IDCs require two points (one out and one return). Relays rated for 2 A @ 30 VDC (resistive) and configurable as either normally open or normally closed.
- Compatible with Simplex remotely located 4009 IDNet NAC Extenders, up to ten for each IDNet SLC

Listings information*

- UL 864, Fire Detection and Control (UOJZ), Smoke Control Service (UUKL), Releasing Device Service (SYZV), Emergency Communication and Relocation Equipment (UOQY)
- UL 1076, Proprietary Alarm Units - Burglar (APOU)
- UL 2017, Process Management Equipment (QVAX), Emergency Alarm System Control Units (FSZI)
- UL 1730, Smoke Detector Monitor (UULH)
- UL 2572, Mass Notification Systems (PGWM)
- CAN/ULC-S527 Control Units for Fire Alarm Systems (UOJZ7), Releasing Device Service (SYZV7)
- CAN/ULC-S559 Central Station Fire Alarm System Units (DAYR7)
- ULC/ORD-C1076 Proprietary Burglar Alarm Units and Systems (APOU7)
- ULC/ORD-C100 Smoke Control System Equipment (UUKL7)

Software Feature Summary

CPU provides dual configuration programs

- Two programs allow for optimal system protection and commissioning efficiency with one active program and one reserve
- Downtime is reduced because the system stays running during download

PC based programmer features

- Convenient front panel accessed Ethernet port for quick and easy download of site-specific programming
- Modifications can be uploaded as well as downloaded for greater service flexibility

* See module information sections for product that is UL or ULC listed and additional listing information. This product has been listed by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:251(4100ES) for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. At the time of publication only UL and ULC listings are applicable to ES Net network products. Additional listings may be applicable; contact your local Simplex product supplier for the latest status

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- Firmware enhancements are made through software downloads to the on-board flash memory

Operator interface features

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

Introduction

4100ES Series Fire Detection and Control Panels provide extensive installation, operator, and service features with point and module capacities suitable for a wide range of system applications. An on-board Ethernet port provides fast external system communications to expedite installation and service activity. Dedicated compact flash memory archiving provides secure on-site system information storage of electronic job configuration files.

Modular design

A wide variety of functional modules are available to meet specific system requirements. Selections allow panels to be configured for either Stand-Alone or Networked fire control operation. InfoAlarm Command Center options provide convenient expanded display content, detailed on data sheet *S4100-1045* .

Module Bay Description

The Master Controller Bay (top) includes a standard multi-featured ES power supply, the master controller board, expansion space for optional features, and operator interface equipment.

The Expansion Bays include a Power Distribution Interface (PDI) for new 4 in. x 5 in. flat design option modules and also accommodate 4100-style modules.

The Battery Compartment (bottom) accepts two batteries, up to 50 Ah, to be mounted within the cabinet without interfering with module space.

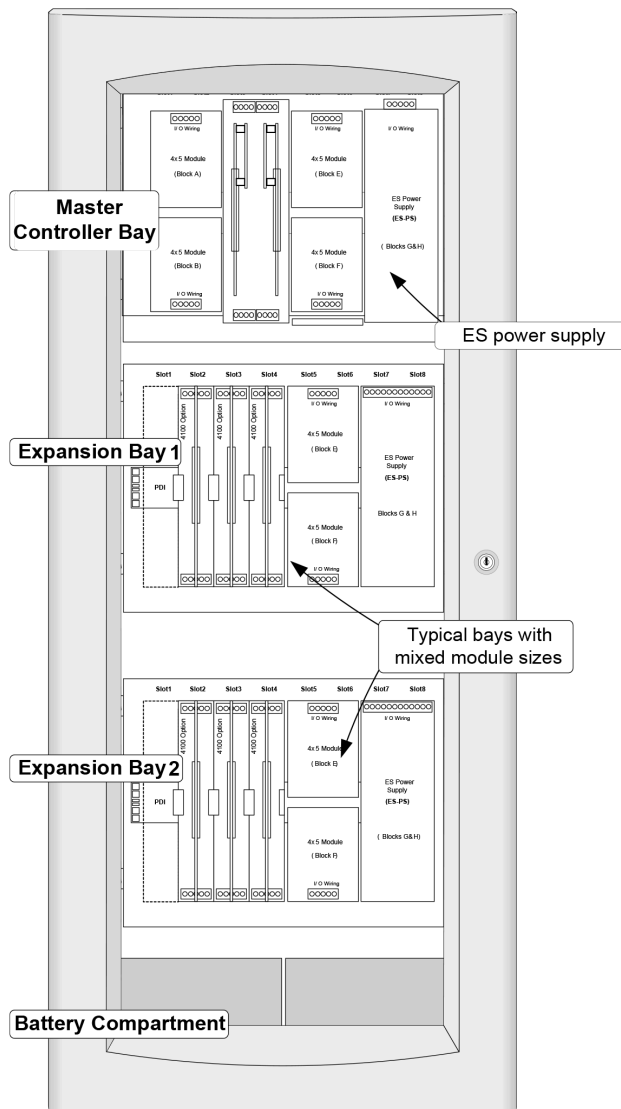Figure 2 identifies bay locations using a three bay cabinet for reference.

Figure 2: 4100ES Module Bay Reference

Mechanical Description

- Boxes can be close-nippled; each box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- The latching dress panel (retainer) assembly easily lifts off for internal access
- NACs can be mounted directly on power supply assemblies providing minimized wiring loss, compact size, and readily accessible terminations
- Packaging supports traditional 4100-style motherboard with daughter cards
- Modules are power-limited except as noted, such as relay modules
- The NEMA 1/IP30 box is ordered separately and available for early installation
- Doors are available with tempered glass inserts or solid; boxes and doors are available in platinum or red
- Boxes and door/retainer assemblies are ordered separately per system requirements; refer to data sheet *S4100-0037* for details

Operator Interface Detail Reference

4100ES Fire Alarm Control Units are provided with either an enhanced Color ES Touch Screen Display or a basic Monochrome 2 Line by 40 Character operator interface depending on the model selected. The following illustrations highlight the primary functions of each.
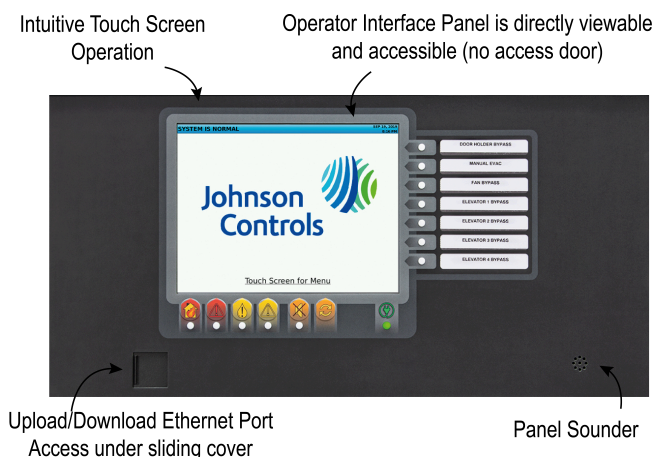

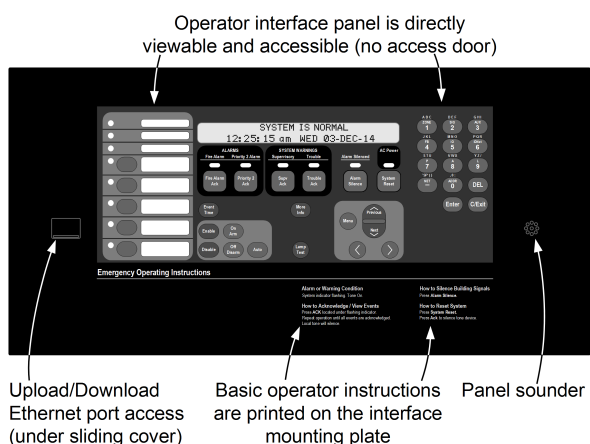**Figure 3: ES Touch Screen Display Interface**

Figure 4: 2 x 40 Operator Interface

Compatible Peripheral Devices

The 4100ES is compatible with an extensive list of remote peripheral devices including printers, CRT/keyboards (up to five total), and both conventional and addressable devices including TrueAlarm analog sensors and TrueAlert addressable appliances.

Master Controller Bay Module Details

Master Controller and Motherboard

- Master Controller mounts in Slot 2 of a two slot motherboard and provides one Class B or Class A, RUI+ communications channel configurable for isolated or un-isolated operation
- Slot 1 of the motherboard is primarily for an optional network interface card, or secondarily for the 4100-6038 dual RS-232 board
- RUI+ and RUI communications controls up to 31 remote devices per master controller at up to 2500 ft (762 m) for single run, or 10,000 ft (3048 m) total if wiring is Class B and T-tapped; if more distance is required, up to four total RUI channels are supported; add up to three 4100-1291 RUI Expansion Modules (4100-1291 provides unisolated RUI communications)
- Compatible RUI+ and RUI remote equipment includes: MINIPLEX transponders, 4603-9101 LCD Annunciators, 4602-9101 Status Command Units (SCU), 4602-9102 Remote Command Units (RCU), 4602 Series LED Annunciator Panels, 4100 Series 24 I/O and LED/ Switch modules, (4602 series annunciators require un-isolated communications)
- Up to four RUI channels (combination of built-in RUI+ and optional RUI modules) are supported per master controller
- Open slot space on the left of the CPU motherboard is available for either another dual slot motherboard, or for one or two block modules, see Figure 14

ES-PS Master Controller Power Supply

- Rating is up to 9.5 A total without a fan or up to 12.7A total with a fan using Special Application appliances; or up to 5 A total with Regulated 24 DC appliance loads.
- Outputs are power-limited, except for battery charger and city circuits.
- Provides system power, battery charging, auxiliary power, auxiliary relay, earth detection, electrically isolated IDNet 2 communications channel for 250 points (4100-3117), three 3 A conventional NACs (4100-5450) or three 3 A IDNAC addressable SLCs (4100-5451), two block spaces for compatible optional modules and provisions for either an optional City Connect Module or an optional Alarm Relay Module (City Connect or Alarm Relay module requires one available block space).
- **IDNet 2 SLC Output** (4100-3109 and 4100-3117) provides an electrically isolated Class B or Class A communications channel with dual short circuit isolating loops for up to 250 addressable devices, as described in Addressable Device Control (requires one block space from ES-PS power supply or Master Controller bay).
- **Conventional NAC Module** (4100-5450) provides three outputs individually selectable as a Conventional NAC (Class B or Class A) or an Auxiliary Power output. When mounted on the ES-PS power supply, each NAC is rated at 3 A for Special Application appliances (9 A max per card) or 2 A for Regulated 24 DC loads (4 A max per card). NAC operation supports synchronized strobe or SmartSync horn/strobe operation over two wires. Auxiliary power outputs are rated for 3 A continuous duty. The total auxiliary power output per power supply is limited to 5 A (requires one block space).
- **IDNAC Addressable Notification SLC Module** (4100-5451) provides three 3 A IDNAC addressable notification SLCs compatible with both TrueAlert ES and TrueAlert addressable notification appliances and remote 4009 IDNAC Repeaters used to extend power and wiring distances (requires two block spaces).
- **DCAI (Dual Class A IDNAC Isolator) Module** (4100-6103) creates two Class A outputs from one IDNAC SLC Class B Input; up to two can

be connected to one IDNAC SLC, with up to 6 total per ES-PS power supply; total Class A output loop current is limited to the 3 A rating of the IDNAC SLC (requires one block space).

- **Battery Charger** is dual rate, temperature compensated, and charges up to 50 Ah sealed lead-acid batteries mounted in the battery compartment (33 Ah for single bay cabinets); also is UL and ULC listed for charging up to 110 Ah batteries mounted in an external cabinet, refer to data sheet S2081-0012 for details.

- **Battery and Charger Monitoring** includes battery charger status and low or depleted battery conditions; status information provided to the master controller includes analog values for: battery voltage, charger voltage and current, actual system voltage and current, individual NAC currents, and individual IDNAC SLC currents.

- **Low Battery Cutout** is selectable for each ES-PS power supply.

- **2 A Programmable Output** is selectable for conventional SNAC or Auxiliary power operation. SNAC operation supports conventional non-synchronous NAC operation to provide supervised reverse polarity for sounder base power, Suppression Release Peripheral (SRP) power, or other coded NAC operation requirements. Auxiliary (AUX) power operation can be used for sounder base power, four-wire detector power, or door holder; relay is selectable as N.O. or N.C and rated for 2 A @ 32 VDC and 30 VAC (resistive); supervised AUX operation does not require an end-of-line relay to provide Power-Limited operation.

- **Auxiliary Relay** is selectable as N.O. or N.C., rated 2 A @ 32 VDC or 30 VAC (resistive), and is programmable as a trouble relay, either normally energized or normally de-energized, or as an auxiliary control.

- **Optional City Connect Module** (4100-6031, with disconnect switches, or 4100-6032, without disconnect switches) can be selected for conventional dual circuit city connections (requires one block space).

- **Optional Alarm Relay Module** (4100-6033) provides three Form C relays that are used for Alarm, Trouble, and Supervisory, rated 2 A resistive @ 32 VDC (requires one block space).

IDNet SLC for Addressable Device Communications

Overview

The 4100ES provides standard addressable device communications for IDNet compatible devices and accepts optional modules for communications with MAPNET II compatible devices. Using a two wire communications circuit, individual devices such as manual fire alarm stations, TrueAlarm sensors, conventional IDC zones, and sprinkler waterflow switches can be interfaced to the addressable controller to communicate their identity and status.

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

Addressable Operation

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

IDNet Channel Capacity

The CPU bay ES-PS provides an IDNet 2 signaling line circuit (SLC) that supports up to 250 addressable monitor and control points intermixed on the same pair of wires. IDNet 2 and IDNet 2+2 Module SLCs are isolated from other system reference voltages to reduce common mode noise interaction with adjacent system wiring. Additional 250 address IDNet 2 or IDNet 2+2 Modules are available, see Table 20.

Table 1: IDNet, MAPNET II, IDNet 2, and IDNet 2+2 SLC Wiring Common Specifications

Specification		Description
Maximum Distance from Control Panel per Device Load	1 to 125	4000 ft (1219 m); 50 ohms
	126 to 250	2500 ft (762 m); 35 ohms
Connections		Terminals for 18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)

Table 2: IDNet and MAPNET II Specifications

Specification		Description
Wire Type	New Installation	Shielded twisted pair (STP)
	Retrofit Only	Unshielded twisted pair (UTP)
Total Wire Length Allowed With "T" Taps for Class B Wiring		Up to 10,000 ft (3 km); 0.58 µF

Note: For retrofit installations consult with your local Simplex product supplier, restrictions may apply.

Table 3: IDNet 2 and IDNet 2+2 Wiring Specifications

Specification		Description
Wire Type	New Installation	Unshielded twisted pair (UTP)
	Retrofit Only	Shielded or unshielded, twisted or untwisted wire
Total Wire Length Allowed With "T" Taps for Class B Wiring		Up to 12,500 ft (3.8 km); 0.60 µF
Maximum Capacitance Between IDNet 2 Channels		1 µF
IDNet 2 and IDNet 2+2 Module Compatibility: IDNet communicating devices and TrueAlarm sensors including QuickConnect and QuickConnect2 sensors		

Note: For retrofit installations consult with your local Simplex product supplier, restrictions may apply.

TrueAlarm System Operation

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

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

CO sensor bases combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network. Refer to data sheet *S4098-0052* for details.

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

TrueSense Early Fire Detection

Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 4100ES IDNet address. The panel evaluates smoke activity, heat activity, and their combination, to provide TrueSense early detection. For more details on this operation, refer to data sheet *S4098-0024* .

Diagnostics and Default Device Type

Sensor Status

TrueAlarm operation allows the control panel to automatically indicate when a sensor is almost dirty, dirty, and excessively dirty. The NFPA 72 requirement for a test of the sensitivity range of the sensors is fulfilled by the ability of TrueAlarm operation to maintain the sensitivity level of each sensor. CO Sensors track their 10 year active life status providing indicators to assist with service planning. Indicators occur at: 1 year, 6 months, and when end of life is reached.

Modular TrueAlarm sensors

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

IDNAC SLC for Addressable Notification Appliance Communications

IDNAC Addressable notification appliance communications

include operation of TrueAlert and TrueAlert ES Visible only (V/O, strobe), Audible only (A/O, horn), Audible/Visible (A/V, horn/strobe), and strobes of Speaker/Visible (S/V) notification appliances. (S/V appliances require separate speaker wiring.) IDNAC SLC addressable communications allow each horn and strobe to be individually controlled using a single two-wire circuit, confirms the wiring connections to the individual notification appliance's electronic circuit, and confirms communications between each appliance and the fire alarm control unit. Addressable communications increases supervision integrity versus conventional notification systems by providing supervision beyond the circuit wiring to each individual appliance and by constantly verifying the ability of each appliance to communicate with the control panel.

Individual Appliance Status and Settings

The fire alarm control panel monitors and records each addressable notification appliance status, type of appliance, and its configured appliance settings. A fault in any individual appliance automatically reports a trouble condition to the control panel.

Figure 5: TrueAlert ES Addressable Appliance Reference

Virtual NACs Provide Control Convenience

For control convenience, IDNAC notification appliances can be grouped into *Virtual NACS* (VNACs) for group control, grouping that can be made across SLCs, not defined by their wiring connection.

Panel Control Convenience

Applicable operation settings for each appliance can be programmed *without having to replace appliances or remove them from the wall or ceiling*. An appliance's VNAC notification zone can be easily changed through programming without having to add additional circuits, conduit, and wiring. Audible and visible appliances for non-Fire Emergency Communications notification can be programmed to operate separately *on the same pair of wires as the fire alarm notification appliances*. The result is lower installation, retrofit, and overall life-cycle cost of ownership compared with traditional conventional notification systems.

Installation, Retrofit, and Life-Cycle Cost Benefits

With each addressable appliance capable of being controlled separately on the same two-wire IDNAC SLC, installation time and expense for both retrofit and new construction can be significantly reduced. When Class B wiring is used, wiring can be "T-tapped" allowing more savings in distance, wire, conduit (size and utilization), and overall installation efficiency.

Location Information, Diagnostics and Troubleshooting

Each addressable notification appliance has its own 40 character custom label to identify the location of the appliance and to aid in troubleshooting fault conditions. In conventional notification systems, conventional appliances are not capable of communicating with the control panel. Fault reporting on a conventional system is limited to the circuit wiring and the entire area (zone) covered by appliances on the notification appliance circuit (NAC) making it much more difficult and costly to locate and correct the source of a problem. Using the TrueAlert *magnet test* allows each appliance to individually identify its candela setting and address and to briefly operate if desired, and using the *TrueAlert ES Appliance Self-Test feature provides detailed performance verification per appliance* .

TrueAlert ES Appliance Self-Test Operation

On-Board Test Sensors

TrueAlert ES appliances are equipped with on-board sensors to detect strobe and/or horn output allowing efficient and unobtrusive Self-Testing. When **Automatic Self-Test** is initiated from the control panel, each appliance within the selected VNAC group will briefly operate and then report its Self-Test status to the control panel, all within several seconds. Silent Self-Test can be selected to test only visible appliance if desired. The control panel is in a trouble condition during testing and in the event of an alarm, Self-Test is automatically terminated. **Additionally, Automatic Self-Test can be scheduled** to occur at a convenient time on a regular basis (Requires version 2.03.01 or higher software).

Automatic Self-Test

Automatic Self-Test results are communicated to the control panel with a time and date stamp and are stored in memory. Results are viewable at the front panel display and printed reports can be generated from the panel service port.

Individual Self-Test

Individual Self-Test is selected from the control panel when individual appliances need to be observed to operate. Each appliance in the selected VNAC group will turn on its LED until individually activated by applying a magnet. After performing the individual test, the appliance LED turns off to indicate completion. Results are recorded the same as during the automatic test.

TrueAlert ES Appliance Self-Test Last Test Results Report Example

```
Service Port                                                            Page 1
REPORT 10   TrueAlertES Self-Test Report                 12:34:56pm  WED  03-DEC-14

Point ID      Custom Label                      Date        Visual        Audible
T1-1-1        VO FIRST FLOOR (up to 40 characters)  03-DEC-14   NO OUT        N/A
T1-2-5        AV FIRST FLOOR EAST WING          03-DEC-14   NO OUT        NORMAL
T7-3-55       AO SECOND FLOOR EAST WING         03-DEC-14    N/A          NO OUT
T8-2-45       AV SECOND FLOOR ROOM 29           03-DEC-14   NOT TST        N/A
T8-2-60       AV SECOND FLOOR ROOM 22           03-DEC-14   NORMAL        NORMAL
T1-2-4        AO FIRST FLOOR ROOM 17            03-DEC-14    N/A          UNSUPP
TRUEALERT_ES SELF-TEST REPORT COMPLETED
                Press RETURN for next Screen OR CTRL-X to abort
```

Results Description

· **NORMAL** = Works correctly

· **NO OUT** = No Output, no light or sound was detected

· **NOT TST** = No result. Either the appliance did not return a result before the test ended or the test was conducted as silent (strobes only) and audible appliance was not activated

· **N/A** = Not applicable (no strobe, on audible only, etc.)

· **UNSUPP** = Appliance not compatible with Self-Test (TrueAlert addressable appliance not TrueAlert ES addressable appliance)

Note: Additional TrueAlert ES Self-Test information is detailed in ES Operating Instructions 579-197 shipped with the panel.

TrueAlert ES Appliance Self-Test All Test Results Report Example

```
Service Port                                                            Page 1
REPORT 10   TrueAlertES Self-Test Report                 12:34:56pm   WED  03-DEC-14

Point ID      Custom Label                      Date        Visual        Audible
T1-1-1        VO FIRST FLOOR                    03-DEC-14   NO OUT         N/A
T1-2-5        AV FIRST FLOOR EAST WING          03-DEC-14   NO OUT        NORMAL
T1-2-6        AV FIRST FLOOR NORTH ENTRANCE     30-OCT-14   NO OUT        NORMAL
T7-3-55       AO SECOND FLOOR EAST WING         03-DEC-14    N/A          NO OUT
T8-2-45       AV SECOND FLOOR ROOM 29           03-DEC-14   NOT TST        N/A
T1-1-11       AV FIRST FLOOR SOUTH ENTRANCE     30-OCT-14   NORMAL        NORMAL
T8-2-60       AV SECOND FLOOR ROOM 22           03-DEC-14   NORMAL        NORMAL
T1-2-4        AO FIRST FLOOR ROOM 17            03-DEC-14    N/A          UNSUPP
T1-2-7        AO FIRST FLOOR ROOM 12            30-OCT-14    N/A          UNSUPP
T8-3-43       AV SECOND FLOOR ROOM 25           30-OCT-14   UNSUPP        UNSUPP
TRUEALERT_ES SELF-TEST REPORT COMPLETED
                Press RETURN for next Screen OR CTRL-X to abort
```

TrueAlert ES Appliance Self-Test Individual Appliance Report Example

```
CUSTOM LABEL
4-1-2                                            AV
POINT ADDRESS: 4-1-2                       Type: AV
CARD: 4    CHANNEL: 1    DEVICE: 2
EXTENDED POWER SUPPLY
UNIT NUMBER: 2                    RUI NUMBER: LOCAL
PRIMARY STATUS                             NORMAL
AUDIBLE GROUP CONFIG:                      0 0 0
VISUAL GROUP CONFIG:                       0 0 0
STYLE:                                     INDOOR
OPERATION:                           GENERAL EVAC
CANDELA RATING                             15 CD
COLOR LENS                                 YES
TONE TYPE                             BROADBAND
CODING TYPE                           TEMPORAL
VOLUME                                     HIGH
LAST TEST TIME:           MON 02-JUN-14 01:00 AM
LAST VISUAL TEST:                          NORMAL
LAST AUDIBLE TEST:                         NORMAL
LAST TEST VOLUME:                          NORMAL
DEVICE TEST TROUBLE:                       NORMAL
```

IDNAC SLC Hardware Reference

ES-PS Power Supplies

ES-PS Power Supplies configured with an IDNAC card provide three, 3 A IDNAC SLCs for control and power to TrueAlert ES and TrueAlert addressable notification appliances. Both power supplies incorporate an efficient switching design that provides a regulated output of 29 VDC, even during battery operation. With 29 VDC minimum output at the panel, addressable notification SLCs can support wiring distances two to three times farther than available with conventional notification, or support more appliances per SLC, or work with smaller gauge wiring, or combinations of these benefits, all resulting in installation and maintenance savings with high assurance that appliances that operate during normal system testing will operate during worst case alarm conditions.

IDNAC SLC Appliance Wiring Reference

IDNAC SLC Capacity

Up to 127 addresses and up to 139 unit loads (appliances are typically one unit load, devices such as Isolators may require more than one load, refer to individual device data sheet for specific information)

Table 4: IDNAC SLC Appliance Wiring Reference

Specification	Rating
Recommended wire type	Unshielded twisted pair (UTP)
Maximum wire length allowed with "T-Taps" for Class B wiring, per SLC	10,000 ft (3048 m)
Maximum wire length per SLC to any appliance	4000 ft (1219 m)
Appliance Supervisory Current	1 unit load = 0.8 mA per appliance
Wiring connections	Terminals for 18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Installation Instructions (see for more information)	579-1015

8-Point Zone/Relay Module Details

· **Select as IDC or Relay;** configure up to eight Class B IDCs, or up to four Class A IDCs; or up to eight Relay outputs rated 2 A resistive @ 30 VDC (N.O. or N.C.); or combinations of IDCs and Relays; each zone is separately configurable as an IDC or Relay output

· **IDC Support:** each IDC supports up to 30, two-wire devices. Zone relay modules may be powered directly from the control unit power supply or through the optional 25 VDC regulator module where required for two-wire detector compatibility. Refer to 2-Wire Detector Compatibility document 579-832 for additional details.

· **IDC EOL resistor values are selectable as:** 3.3 kΩ, 2 kΩ, 2.2 kΩ, 3.4 kΩ, 3.9 kΩ, 4.7 kΩ, 5.1 kΩ, 5.6 kΩ, 6.34/6.8 kΩ, and 3.6 kΩ + 1.1 kΩ; see instructions for more details

Color ES Touch Screen Display

The Color ES Touch Screen Display interface offers intuitive operation similar to a tablet or smart phone. With a larger area format versus an individual text line display, more information is available at a glance, and minimal key presses are needed to access detailed information.
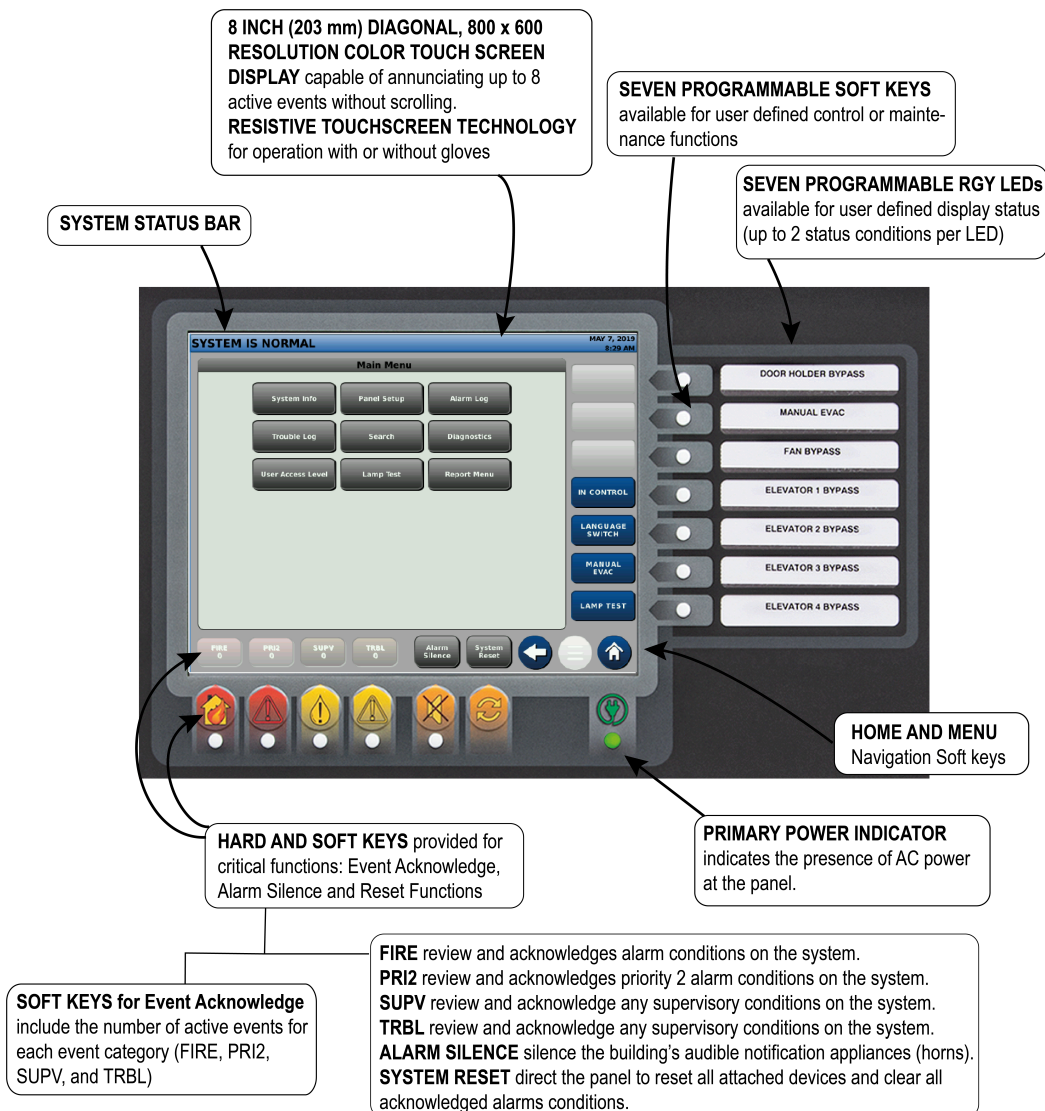

8 INCH (203 mm) DIAGONAL, 800 x 600 RESOLUTION COLOR TOUCH SCREEN DISPLAY capable of annunciating up to 8 active events without scrolling.
RESISTIVE TOUCHSCREEN TECHNOLOGY for operation with or without gloves

SEVEN PROGRAMMABLE SOFT KEYS available for user defined control or maintenance functions

SEVEN PROGRAMMABLE RGY LEDs available for user defined display status (up to 2 status conditions per LED)

SYSTEM STATUS BAR

HOME AND MENU Navigation Soft keys

PRIMARY POWER INDICATOR indicates the presence of AC power at the panel.

HARD AND SOFT KEYS provided for critical functions: Event Acknowledge, Alarm Silence and Reset Functions

SOFT KEYS for Event Acknowledge include the number of active events for each event category (FIRE, PRI2, SUPV, and TRBL)

FIRE review and acknowledges alarm conditions on the system.
PRI2 review and acknowledges priority 2 alarm conditions on the system.
SUPV review and acknowledge any supervisory conditions on the system.
TRBL review and acknowledge any supervisory conditions on the system.
ALARM SILENCE silence the building's audible notification appliances (horns).
SYSTEM RESET direct the panel to reset all attached devices and clear all acknowledged alarms conditions.

Figure 6: ES Touch Screen Display Operator Interface

Features

ES Touch Screen Displays provide customized operating experience

· Event activity display choices include: First 8 Events; or First 7 Events with emphasis on Most Recent; or First 6 Events with emphasis on First and Most Recent (individually selectable for each event type)
· System reports are easily viewable; logs can be read with minimal scrolling
· Up to two languages are available per system, easily selected by programmable key press
· Information sent to Remote ES Touch Screen Displays can be vectored by point or zone
· Both Hard and Soft keys available for critical functions: Event Acknowledge, Alarm Silence, and Reset Functions
· Resistive touchscreen technology allows operation with or without gloves
· Seven programmable RGY LEDs available for user-defined display status (up to 2 status conditions per LED)
· Seven programmable Soft keys available for user-defined control or maintenance functions
· PRI2 Soft key label can be changed to CO to annunciate Carbon Monoxide detection status
· ES Touch Screen Display can be programmed to report individual points or groups of points as a single zone
· Supports ability to display a custom watermark background file of a company logo or other desired display content
· Seismically compliant under the State of California Statewide Office of Housing and Development (OSHPD) Special Seismic Certification (SSC) program guidelines. Refer to *Simplex Seismic Application Guide* 579-1213 and *Battery Brackets for Seismic Activity Applications* S2081-0019 for details.

Display properties

· 8 inch (203 mm) diagonal, 800 x 600 resolution color touch screen display capable of annunciating up to 8 active events without scrolling

· Bright white LED backlighting provides efficient and long lasting illumination; backlight is dim in quiescent state, automatically switches to full power on touch or on event activity in system.

Description

ES Touch Screen Displays for 4100ES fire alarm systems provide a large display with extended information content, dual language support including UTF-8 character languages, and an intuitive control key interface per the following:

· Up to 10 ES Touch Screen Displays are supported per 4100ES control panel; able to allow one ES Touch Screen Display to take-control and to designate access levels for interfaces not in-control; programmable LEDs can be assigned to in-control status indications

· Menu-driven format conveniently prompts operators for the next action required

· Direct point callup displays individual points alphabetically and then homes in on the logical choice as more point information is entered

· Event categories are color coded for quick visual representation; Red for Alarm and Priority 2 Events; Yellow for Supervisory and Trouble events

· Date formats are either MM/DD/YY or DD/MM/YY

· Time formats are either 24 hour or 12 hour with AM/PM

· System Normal screen supports a color background (watermark) for company name, company logo, or other desired display content

Example Display Screens
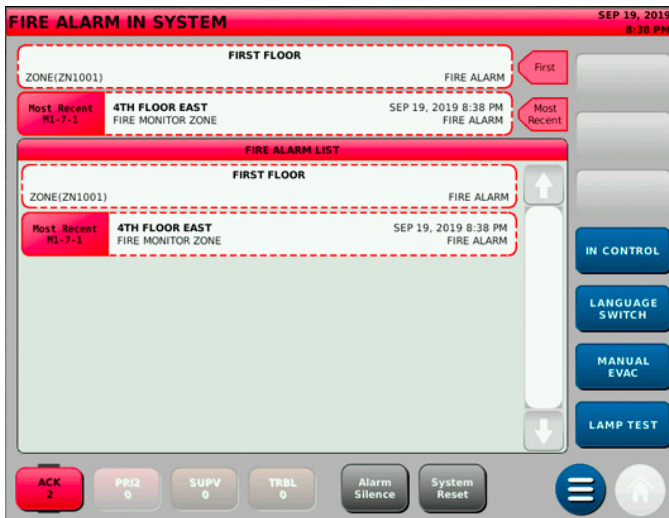
Figure 7: First and Most Recent Alarm Display

Figure 8: Main Menu

Figure 9: First Eight Active Trouble Events List

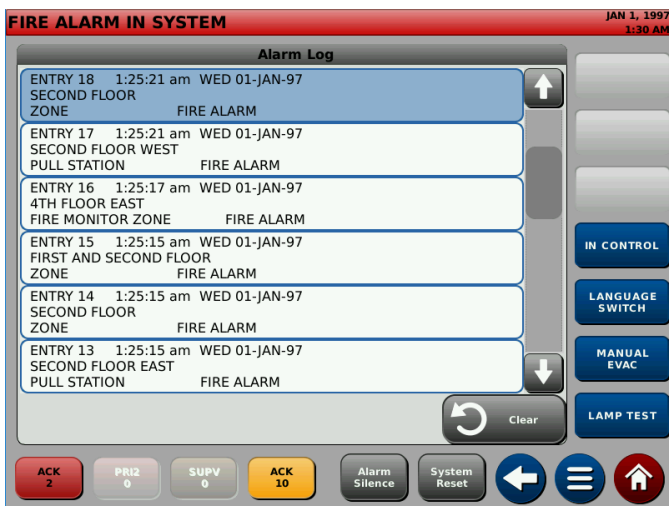**Figure 10: Direct Point Callup**
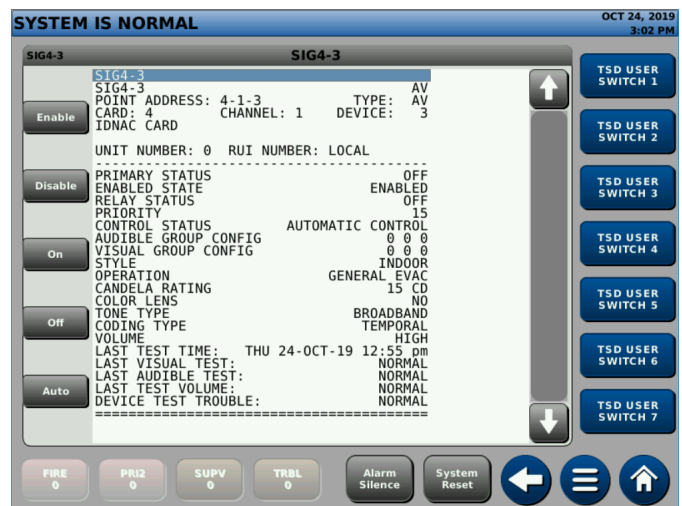
Figure 11: Alarm History Log

Figure 12: Detailed Point Status Screen for TrueAlert ES Appliance

Specifications

Table 5: General ES Touch Screen Display Specifications

Specification	Rating
Resolution	800 x 600 Pixels (RGB)
Size / Type	8 inch (203 mm) Diagonal / Color Touch Screen
Touch Screen Technology	Resistive
Event Display	Up to 8 Events without scrolling
Normal Screen Custom Watermark File Format	680 x 484 Pixels: BMP, JPG, TIFF, GIF or PNG file format
Environmental	Operating Temperature: 32°F to 120°F (0°C to 49°C)
	Operating Humidity: Up to 93% RH, non-condensing @ 90°F (32°C) maximum

Operator Interface with Monochrome 2 x 40 LCD

With the locking door closed, the glass window allows viewing of the display, status LEDs, and available operator switches. Features include a two-line by 40-character, wide viewing angle (super-twist) LCD with status LEDs and switches as shown in Figure 13.

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

· Convenient and extensive operator information is provided using a logical, menu-driven display
· Multiple automatic and manual diagnostics for maintenance reduction
· Alarm and Trouble History Logs (up to 1000 entries for each, 2000 total events) are available for viewing from the LCD, or capable of being printed to a connected printer, or downloaded to a service computer
· Convenient PC programmer label editing
· Password access control

FIRE ALARM ACK acknowledges a Fire Alarm condition, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

PRIORITY 2 ACK acknowledges a Priority 2 Alarm condition, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

SUPV ACK acknowledges system supervisory conditions, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

TROUBLE ACK acknowledges system troubles, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

ALARM SILENCE causes audible and visible notification appliances to be silenced (default operation, may be modified through panel programming for compliance with local requirements)

SYSTEM RESET restores control panel to normal when all alarmed inputs are returned to normal

SIX SYSTEM STATUS INDICATOR LEDs provide system status indications in addition to LCD information, LEDs flash to indicate the condition and then when acknowledged, remain on until reset :
Fire Alarm & Priority 2 Alarm, red LED
Supervisory & Trouble, yellow LED
Alarm Silenced, yellow LED
AC Power, green LED (on for normal)

THREE PROGRAMMABLE LEDs provide custom labeling, the top two LEDs are selectable as red or yellow, the bottom LED is selectable as green or yellow

2 X 40 LCD READOUT, LED backlighted during normal conditions and abnormal operating conditions, provides up to 40 characters for custom label information

FIRST ALARM DISPLAY: Operation can be selected for maintained display of first alarm until acknowledged

Custom label insert

FIVE PROGRAMMABLE FUNCTION SWITCHES, each with a yellow LED indicator

POINT STATUS CONTROL KEYS:
Point Enable and Disable
Force On or Arm
Force Off or Disarm
Return On/Off or Arm/Disarm to Auto Mode

ADDITIONAL FUNCTION KEYS:
Event Time Request
More Information Request
Lamp Test

LCD NAVIGATION CONTROL:
Menu selection
Vertical and Horizontal position selection buttons

NUMERIC KEYPAD for point category and point selection (alphabet characters are not used at this time)

Figure 13: Operator Interface

Expansion Bay Module Loading Reference

| Slot 1 | Slot 2 | Slot 3 | Slot 4 | Slot 5 | Slot 6 | Slot 7 | Slot 8 |

Block A **Block C** **Block E** **Block G**

Block B **Block D** **Block F** **Block H**

Expansion Bay Chassis

Size Definitions: Block = 4 in. W x 5 in. H (102 mm x 127 mm) card area

Slot = 2 in. W x 8 in. H (51 mm x 203 mm) motherboard with daughter card

Table 6: Expansion bay loading reference

Description		Mounting
IDNet 2, IDNet 2+2 Modules		1 Block
Four 2 A Relays	NON Power-limited	1 Block
Four 10 A Relays		4 in., 2 Slots
Eight 3 A Relays		1 Block
VESDA Interface		2 in., 1 Slot
Class B IDC		2 in., 1 Slot
Class A IDC		2 in., 1 Slot
MAPNET II Module		4 in., 2 Slots
MAPNET II/IDNet Isolator		2 in., 1 Slot
NAC Card		1 Block
IDNAC Card		2 Blocks (on ES Power Supply only)
ES-PS		Blocks G & H ONLY
ES-PS Configured as backup		Blocks E & F ONLY
ES-XPS		2 Blocks

Mounting and Master Controller Bay Module Reference
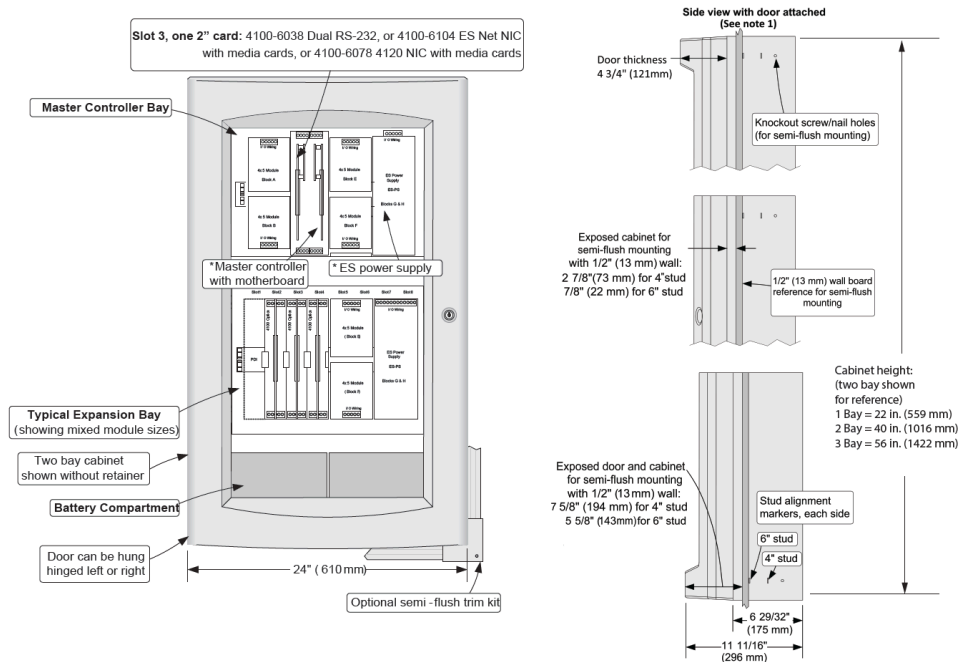
Figure 14: Mounting and CPU Bay Module Reference

Note:

1. Side View dimensions are shown with minimal cabinet and door protrusion from the exterior wall. For 6 in. stud construction with minimum protrusion shown, the door will open 90 degrees. To allow the door to open 180 degrees, the exposed cabinet dimension from the exterior wall must be a minimum of 3 in. (76 mm) for both 4 in. and 6 in. stud construction.

2. Asterisks (*****) in Figure 14 indicate supplied modules.

3. A system ground must be provided for earth detection and transient protection devices. This connection shall be made to an approved, dedicated earth connection per NFPA 70, article 250, and NFPA 780.

General Specifications

Table 7: ES Power Supply Specifications (ES-PS and ES-XPS)

Specifications	Rating
AC Input Power	120 to 240 VAC
120 VAC	3.72 A
220 to 240 VAC	1.82 A
Total DC Output Power Capacity	
Without Fan	9.5 A
With 4100-5131 Fan and 4100-5451 IDNAC Module(s)	9.7 A
With 4100-5131 Fan (without 4100-5451 IDNAC Module)	12.7 A
With Regulated 24V Appliance Loads (with or without 4100-5131 Fan)	5.0 A
Special Application Appliance Loads: supports full total DC output power capacity ratings above	Simplex horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)
Regulated 24V Appliances: reduces total DC output power capacity to 5.0 A	Power for other UL listed appliances; use associated external synchronization modules where required
Auxiliary Power Tap	2 A maximum (taken from total output power capacity)
NACs Programmed for Auxiliary Power	3 A maximum per NAC, 5 A maximum total (taken from total output power capacity)
Battery Charger (ES-PS only)	Sealed Lead-Acid Batteries
Battery Ah Capacity	UL/ULC listed for battery charging of up to 110 Ah (batteries larger than 50 Ah require a remote battery cabinet)
Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 48 hours
Environmental	
Operating Temperature	32°F to 120°F (0°C to 49°C)
Operating Humidity	Up to 93% RH, non-condensing @ 90°F (32°C) maximum
Option Card Mounting	2 vertical blocks are available fore compatible modules; refer to 579-1288 installation instructions for additional details

Note:

1. Battery charger is only available on the ES-PS power supply.
2. When an ES-PS is used to power Flex-35 or Flex-50 Amplifiers the ES-PS battery charger is not available.

Master Controller Selection Information

Note for Table 8 and Table 9

· Supervisory and alarm currents are without IDNet devices. Add IDNet device currents seperately.

Table 8: 4100ES Master Controller Selection

Model	Description	Includes	Listings	Supv.	Alarm
4100-9701	ES-PS Master Controller with 2x40 Display - English	Master Controller – English, 2x40 Display, CPU Card, IDNet 2 Card supports up to 250 addressable/analog points, ES Power Supply (120 V to 240 V 50/60 Hz, 24 V Aux. Relay, 24 V Aux. Power Tap/Simple NAC, 110 Ah Battery Charger) and external RUI+ (isolated or un-isolated) communications interface.	UL/ULC	277 mA (See note)	321 mA (See note)
4100-9702	ES-PS Master Controller with 2x40 Display - Canadian French	Same as 4100-9701 above except with Canadian French user interface.	ULC		
4100-9706	ES-PS Master Controller with ES Touch Screen Display	Same as 4100-9701 above except with Color ES Touch Screen Display user interface. For dual language support, desired language is switch selectable.	UL/ULC, CSFM	362 mA (See note)	441 mA (See note)
4100-9709	ES-PS Master Controller without Display - English	Same as 4100-9701 above except with no 2x40 Display or user interface.	UL/ULC	277 mA (See note)	321 mA (See note)

Note:

1. The Master Controller current draw specifications do not include IDNet, NAC, or IDNAC current draws. These must be added separately as required.
2. International orders may substitute MX Loop Module (4100-3120) in place of IDNet 2 Module (4100-3117). Refer to data sheet S4100-0059 for more details. The 4100-3120 provides the same module and specifications as the 4100-6311 but is dedicated as a Master Controller feature selection.
3. At the time of publication English and Canadian French languages are available for ES Touch Screen Display models. Contact your local Simplex product supplier for the latest status and availability for other languages.

Table 9: 4100ES Master Controller Upgrades for Existing 4100 Series Fire Alarm Control Panels

Model	Panel Type	Includes
4100-7150	1000 pt 4100 (4100+)	New Master Controller CPU card, 4100ES door assembly with 2 x 40 LCD operator interface, and Ethernet connection
4100-7152	512 pt 4100	Same as 4100-7150 plus a Universal Power Supply
4100-7158	4100U or1000 pt 4100 (4100+) previously upgraded to 4100U	New Master Controller CPU card with Ethernet Connection Upgrade Kit (door assembly with user interface not included) for: 4100U with or without operator interface, or 4100+ and operator interface, or an existing 4100 (512 pt) or 4100+ (1000 pt) panel that was previously upgraded to a 4100U Master Controller and operator interface
4100-7162	1000 pt 4100 (4100+)	New Master Controller CPU card, 4100ES door assembly with Color ES Touch Screen Display user interface and Ethernet connection for 4100+ cabinet (requires 4100ES Version 6.01 or higher)
4100-7163	4100+ Cabinet upgraded with New Master Controller CPU card	4100ES door assembly with Color ES Touch Screen Display user interface and Ethernet connection for 4100+ cabinet previously upgraded with New Master Controller CPU card (requires 4100ES Version 6.01 or higher)
4100-7164	2000 pt 4100 (4100U)	New Master Controller CPU card, 4100ES door assembly with Color ES Touch Screen Display user interface and Ethernet connection for 4100U cabinet (requires 4100ES Version 6.01 or higher)

Table 10: ES Touch Screen Display User Interface Upgrade Kit

Model	Panel type	Description
4100-7165	4100ES or 4010ES	New ES Touch Screen Display User Interface for upgrading an existing 4100ES 2x40 LCD or InfoAlarm User Interface, or for upgrading an existing 4010ES InfoAlarm User Interface to a new ES Touch Screen Display User Interface

Table 11: Master Controller Accessories

Model	Description
4100-2300	Expansion Bay Assembly; order for each required expansion bay (not required for 4100-9121)
4100-2303	Legacy Module Stabilizer Bracket, used when expansion bays have legacy slot style modules
4100-2301	Expansion Bay Upgrade Kit for mounting 4100ES style (4 in. x 5 in. modules) in existing 4100 style panels; **Note:** When using this kit to upgrade a 4100+ transponder, a 4100-0620 Transponder Interface Card (TIC) is also required for communications to the 4100ES module

Table 12: Master Controller Upgrades for Existing 4020 Series Fire Alarm Control Panel

Model	Description
4100-9833	4020 Master Controller Upgrade to 4100ES; Includes New Master Controller with 2 x 40 LCD & operator interface assembly, 8 VDC Converter and RUI+ (isolated or un-isolated) Interface in a single bay cabinet with locking glass door and retainer; mounts as an adjunct panel close-nippled to existing 4020 cabinet; also includes 8 VDC box-to-box power and communications harness and solid filler panel for the existing 4020 Master Controller bay

Module Selection Information

Current Calculation Notes

To determine total supervisory current, add currents of modules in panel to base system value and all external loads powered by panel power supplies.

To determine total alarm current, add currents of modules in panel to base system alarm current and add all panel NAC loads and all external loads powered from panel power supplies.

Table 13: Communication Modules

Model	Description			Size	Supv.	Alarm
4100-1291	Un-isolated remote unit interface module (RUI); up to three maximum per control panel			1 Slot	85 mA	85 mA
4100-6031	**Select one per ES Power Supply (non power-limited)**	City Circuit, with disconnect switches	For use with ES-PS only (not for backup ES-PS or ES-XPS)	1 Block	20 mA	36 mA
4100-6032		City Circuit, without disconnect switches			20 mA	36 mA
4100-6033		Alarm Relay, three Form C relays, 2 A @ 32 VDC			15 mA	37 mA
4100-6038	Dual Port RS-232 with 2120 interface (slot module)	Three maximum of RS-232 type modules per panel		1 Slot	132 mA	132 mA
4100-6046	Dual Port RS-232 standard interface (4 in. x 5 in. module)			1 Block	60 mA	60 mA
4100-6048	VESDA Aspiration System Interface			1 Slot	132 mA	132 mA
4100-6080	DACT, Point or Event Reporting; one shipped unless 4100-7908 is selected; two max. per system; includes two 2080-9047 cables, 14 ft (4.3 m) long, RJ45 plug and spade lugs			Side Mt.	30 mA	40 mA

Table 14: Connected Services Gateway with IP communicator

Model	Description	Size
4100-2504	Connected Services Gateway with IP communicator, side mount	1 slot
4100-2506	Connected Services Gateway with IP communicator, vertical mount	2 blocks

Table 15: ES Power Supplies

Model	Voltage	Description	Includes	Provides Power to Bay	Size	Supv.	Alarm
4100-5401	120 to 240 V 50/60 Hz	ES-PS	24 V Aux. Relay, 24 V Aux. Power 2 A Tap/ Simple NAC, 110 Ah Battery Charger, 2 PDI Blocks for compatible option cards.	Yes	2 Blocks	68 mA	77 mA
4100-5402	120 to 240 V 50/60 Hz	ES-XPS	Same as ES-PS above, except without battery charger	No			

Table 16: Power supply accessories

Model	Description	Size	Current
4100-5152	12 VDC Power Option, 2 A maximum	1 Block	1.5 A maximum
4100-0156	8 VDC Converter, required for multiple Physical Bridge Modules, 3 A maximum	1 Block	included with loads
4100-5130	Voltage Regulator Module, 22.8 to 26.4 VDC (25 VDC nominal); isolated and resettable output; includes earth detection circuit and trouble relay for status monitoring.	1 Block	3 A maximum with 2.5 A load, 4.9 A maximum with 4 A load
4100-5131	ES-PS Fan Module, allows more than one power supply to be installed in a single bay and may increase total DC output power capacity per power supply. See Table 7 for specifications.	N/A	0 mA Supv. 200 mA Alarm
4100-0636	Box Interconnection Harness Kit (non-audio); order one for each close-nippled cabinet		
4100-0638	4100 Slot Module Additional 24 VDC Harness; needed when 4100 Slot module requirements exceed 2 A from ES-PS		
4100-5403	Harness for ES-PS Backup Power Supply		
4100-0644	120 VAC PDM Harness	One PDM harness is required per power supply, select as required for appropriate input voltage
4100-0645	220 VAC PDM Harness	
4100-0646	230 VAC PDM Harness	
4100-0647	240 VAC PDM Harness	

Table 17: Conventional and Addressable Notification Appliance Modules

Model	Description	Outputs	Size	Max Load - Special Application*		Max Load - Regulated 24 V		Current Draw	
				On ES-PS / ES-XPS	In Bay	On ES-PS / ES-XPS	In Bay	Supv.	Alarm
4100-5450**	Conventional NAC Module	Three 3 A NACs	1 Block	3.0 A / NAC 9.0 A / Card	3.0 A / NAC 6.0 A / Card	2.0 A / NAC 5.0 A / Card	2.0 A / NAC 2.0 A / Card	66 mA	66 mA
4100-5451**	IDNAC Addressable Notification SLC Module	Three 3 A SLCs	2 Blocks (on ES Power Supply only)	3.0 A / NAC 9.0 A / Card	N/A	N/A		124 mA	230 mA

*Special Application specifications apply to both Special Application and Steady Aux Power loads during alarm operation. Available power during non-alarm operation is 5.0 A maximum.

**The 4100-5450 and 4100-5451 can only be powered from a 4100-5401 and 4100-5402 power supply.

Table 18: Dual Class A Isolator for IDNAC

Model	Description	Size	Supv.	Alarm
4100-6103	**Dual Class A IDNAC Isolator (DCAI)**, converts a single Class B IDNAC SLC input to two Class A SLC outputs; provides short circuit isolation between each Class A output circuit; connect up to two DCAI Modules per IDNAC SLC input up to a maximum of 6 DCAI Modules per IDNAC SLC; each isolated output SLC used requires one IDNAC address; the total current remains controlled by the Class B input source SLC at 3 A maximum; each isolated loop supports up to 30 device addresses **Note:** Up to 30 additional device addresses may be installed between each 4905-9929 TrueAlert Addressable Isolator+ Module, not to exceed the maximum address and unit loading specifications for the IDNAC channel	1 Block	8.3 mA	18.5 mA

Table 19: 8-Point Zone/Relay Card

Model	Description	Size	Supv.	Alarm
4100-5013	8 point zone/relay 4 in. x 5 in. flat module. Supports eight Class B or four Class A IDCs. Mounts in any open block in a master controller or expansion bay. Alarm current shown is for eight Class B IDCs using 3.3K end-of-line-resistors with four in alarm and four in standby. Standby current shown is for all eight IDCs in standby. Refer to 579-1236 Zone/Relay Module Installation Instructions for additional information.	1 Block	83 mA	295 mA
4100-6305	25 V regulator harness for 8 point zone/relay module. One required for each 8 point zone/relay module to be powered by the 4100-5130 25 V regulator module. A maximum of five 8 point zone/relay modules may be powered from the 4100-5130 per bay.	N/A	N/A	N/A

Note: Modules in Table 19 requires 4100ES Version 3.06 or later.

Table 20: IDNet Addressable Interface Modules

Model	Description	Devices	Standby	Alarm
4100-3109 4100-3117	IDNet 2 Module, 250 point capacity; electrically isolated output with two short circuit isolating Class B or Class A output loops, 1 block; standard on ES-PS with IDNet 2 Module; alarm currents for 50 and above devices includes 20 device LEDs in alarm	none	50 mA	60 mA
		50	90 mA	150 mA
		125	150 mA	225 mA
		250	250 mA	350 mA
4100-3110	IDNet 2+2 Module, 250 point capacity; electrically isolated output with four short circuit isolating Class B or Class A output loops, one block; alarm currents for 50 and above devices includes 20 device LEDs in alarm	none	50 mA	60 mA
		50	90 mA	150 mA
		125	150 mA	225 mA
		250	250 mA	350 mA
4100-3111	IDNet Short Circuit Isolating Loop Output Module; mount up to two on a 4100-3109 or 4100-3117 module; this option is for aftermarket field installation only. Total initiating SLCs per CPU, including VESDA Interface is 30.			

Note: Each IDNet 2 and IDNet 2+2 Short Circuit Isolating Loop Output can be individually controlled for system diagnostics and can be assigned a public point for Fire Alarm Network

Table 21: Current draw for each IDNet device

Condition	Current
Standby	0.8 mA
Alarm, with LED off	1.0 mA
Alarm, with LED on	3.0 mA
Note: A maximum of 20 devices with LED on is supported for each channel. Additional device LEDs do not turn on.	

Table 22: MAPNET Addressable Interface Modules

Model	Description		Supv.	Alarm
4100-3102	MAPNET II Module, 127 point capacity, add devices separately; Module size = 2 Slots; Loading per MAPNET II device = 1.7 mA	Module without devices	255 mA	275 mA
		Fully loaded module, total	471 mA	491 mA
4100-3103	Isolator Module for MAPNET II communications; converts a single connected SLC into four isolated outputs selectable as Class A or Class B; up to two Isolator Modules can be connected to one SLC; Module size = 1 Slot; **Note:** Compatible with MAPNET II Remote Isolators only		50 mA	50 mA

Table 23: Relay Modules; Non power-limited (for mounting in expansion bay only)

Model	Description	Resistive Ratings		Inductive Ratings		Size	Supv.	Alarm
4100-3202	4 DPDT w/feedback	10 A	250 VAC	10 A	250 VAC	2 Slots	15 mA	175 mA
4100-3204	4 DPDT w/feedback	2 A	30 VDC/VAC	1/2 A	30 VDC/120 VAC	1 Block	15 mA	60 mA
4100-3206	8 SPDT	3 A	30 VDC/120 VAC	1-1/2 A	30 VDC/120 VAC	1 Block	15 mA	190 mA

Table 24: Miscellaneous Accessories

Model	Description
4100-1279	Single blank 2 in. display cover; 4100-2302 provides a single plate for a full bay
4100-9856 *	4100ES Canadian French Appliqué Kit; Simplex, 4100ES, Contrôle Incendie
4100-9857 *	4100ES English Appliqué Kit; Simplex, 4100ES, Fire Control
4100-9858 *	4100ES InfoAlarm Remote Display English Appliqué Kit; Simplex, Operator Interface, 4100ES
4100-9859 *	4100ES InfoAlarm Remote Display Canadian French Appliqué Kit; Simplex, Interface de l'operateur, 4100ES
4100-9868	Special Purpose Appliqué Kit: Simplex, Elevator Recall Control and Supervisory Control Unit, 4100ES
4100-9869	Special Purpose Appliqué Kit: Simplex, Sprinkler Waterflow and Supervisory Station, 4100ES
4100-9835	Termination and Address Label Kit (for module marking); provides additional labels for field installed modules

Table 24: Miscellaneous Accessories

Model	Description
4100-6034	Tamper Switch, one per cabinet assembly if required; monitors solid door for panels with solid door; monitors the internal retainer panel for panels with glass door (not the glass door); has a built-in addressable IDNet IAM
2081-9031	Series resistor for WSO, IDCs (N.O. water flow and tamper on same circuit, wires after water flow and before tamper) 470 Ω, 1 W, encapsulated, two 18 AWG leads (0.82 mm2), 2 1/2 in. L x 1 3/8 in. W x 1 in. H (64 mm x 35 mm x 25 mm)

Note: ***** 4100ES English Appliqués are included with 4100ES Upgrade and Retrofit Kits for mounting 4100ES in 4100, 2120, 2001, and Simplex back boxes so that upgrades can be easily identified as 4100ES. 4100ES Appliqué Kits are available for applications such as to update Remote InfoAlarm Displays connected to a panel that was upgraded to 4100ES or for an existing 4100U when the New Master Controller is upgraded to 4100ES and only a software upgrade is required. When required, French appliqués are ordered seprately.

Network Interface and Network Media Card Product Selection

4100ES fire alarm control units are compatible with Simplex ES Net network or 4120 network fire alarm products.

· Refer to datasheet *S4100-0076* for additional information on compatible ES Net fire alarm products.
· Refer to datasheet *S4100-0056* for additional information on compatible 4120 fire alarm products.

Additional 4100ES and Network Product Reference

Table 25: Additional 4100ES and Network Product Reference

Subject	Data Sheet
Serial DACT (SDACT) for 4100ES, 4010ES, 4007ES	S2080-0009
Connected Services Gateway - Central Station Communication and SafeLINC Cloud Services	S2080-0091
Battery and Battery Cabinet Reference for 4100ES	S2081-0006
110 Ah Batteries and Cabinets for 4100ES	S2081-0012
4009 IDNet NAC Extender	S4009-0002
4009 IDNAC Repeater	S4009-0004
External 110 Ah Battery Charger for 4100ES, 4010ES	S4081-0002
Graphic I/O Modules for 4100ES, 4010ES, 4007ES	S4100-0005
Interface to VESDA Air Aspiration Detection Systems	S4100-0026
4100ES LED/Switch Modules & Printer	S4100-0032
Master Clock Interface	S4100-0033
4100ES Enclosures	S4100-0037
4100ES Extinguishing Release Applications	S4100-0040
TFX Interface Module	S4100-0042
2120 BMUX Module	S4100-0048
Multiple Signal Fiber Optic Modems for 4120 Networks	S4100-0049
BACpac Ethernet Module	S4100-0051
4120 Network Products and Specifications	S4100-0056
Building Network Interface Card (BNIC)	S4100-0061
SafeLINC Internet Interface	S4100-0062
Emergency Voice/Alarm Communications Equipment with ES-PS Power Supplies	S4100-1034
MINIPLEX Transponders with ES-PS Power Supplies	S4100-1035
NDU with ES-PS Power Supplies for 4120 Network	S4100-1036
4100ES Remote Annunciator Panels with ES-PS Power Supplies	S4100-1039
Remote ES Touch Screen Displays for 4100ES and 4010ES Panels	S4100-1070
ES Net Network Products and Specifications	S4100-1076
NDU with ES-PS Power Supplies for ES Net	S4100-1077
TrueSite Workstation	S4190-0016
TrueSite Incident Commander	S4190-0020
Network System Integrator (NSI) for ES Net and 4120 Networks	S4190-0026
24-Pin Dot Matrix Fire Alarm System Remote Printer	S4190-0027
SCU/RCU Annunciators for 4007ES, 4010ES, 4100ES	S4602-0001
LCD Annunciator for 4100ES	S4603-0001

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

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CATEGORY: 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4072 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models 4100-9111, -9112, -9113, -9114, -9115, -9116, -9121, -9122, -9131, -9132, -9133, -9211, -9212, -9213, -9222, -9230, -9311, -9312, -9313, -9314, -9315, -9316, -9331, -9332, -9511, -9512, -9513, -9600, -9601, -9602, -9701, -9703, -9705, and -9709 Fire Alarm Control Units. Power limited, automatic, manual, local, auxiliary, remote station, proprietary and central station, process monitoring, smoke control system, smoke detector monitor, emergency communication and relocation, waterflow and sprinkler supervisory service. Suitable for releasing device service. Models 4100- 9111, -9112, -9113, -9114, 9115, -9116, -9121, -9122, -9211, -9212, -9213, -9222, -9311, -9312, -9313, -9314, -9511, -9512, and -9513 suitable for mass notification system as an autonomous control unit. The network display units are suitable for mass notification system system as a central control station. The remote annunciators are suitable for mass notification system system as a local operating console. Refer to listee's data sheet for detailed product description and operational considerations.

System components:
4100-7101, -7104, -7113, -7115: Master Controller Assembly
4100-7105: Redundant Master Controller Assembly
4100-7150, -7158, -7152,-7154,-7156, -9833: Master Controller Replacements
4100-5005, -5015: 8-Point Class A IDC Module
4100-1291: Remote Unit Interface Module
4100-3102, -9812: MAPNET II Module
4100-3103: MAPNET/IDNET Isolator Module
4100-6038 RS-232/2120: Communication Module
4100-6014,-6078: Modular Network Interface Module
4100-1293: Printer
4100-6052,-6080: Event Reporting DACT
4100-6053: Point reporting DACT
4100-6067: Contact Closure DACT
4100-6031, -6032, -9827, -9828: City Module
4100-2300, -2320: Expansion Bay
2975-9408 thru -9412: Backbox
2975-9438 thru -9440: Backbox

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Fire Engineering Division

4100-2101 thru -2103, -2121 thru -2123: Glass Door and Retainer
4100-2104 thru -2106, -2124 thru -2126: Glass Door and Retainer
4100-2111 thru -2113, -2131 thru -2133: Solid Door
4100-2114 thru -2116, -2134 thru -2136: Solid Door
2975-9422 thru -9426, -9428, -9429: Enclosure
2975-9431, -9432: Enclosure
2975-9441 thru -9452: Enclosure
4100-0633, -6034: Tamper Switch
4100-9141,-9142,-9151,-9152,-9241 thru -9246,-9342,-9352,-9542: Network Display Unit
4100-6030, -6055: Service Modem
4100-5101, -5102, -5103: Expansion Power Supply
4100-5111, -5112, -5113: System Power Supply
4100-5125, -5126, -5127: Remote Power Supply
4100-1288, -1289: LED/Switch Controller
4100-1275 thru -1287, -1295, -1296, -1299: LED/Switch Module
4100-1300, -1301, -1302: LED/Switch Module
4100-1290 24: Point Graphic I/O Module
4100-9607,-9609,-9610, -9611,-9612,-9614,-9615: Remote Annunciator
4100-1292: Remote LCD Display
4100-3115: XA Loop Interface Module
4100-3101,-3104, -3105, -3106, -3107,-3108,-3109,3110,3111,-9811: IDNET Module
4100-9116: Addressable IDNET Isolator
4090-9117: Addressable Power Isolator
4100-9643: Utility Cabinet
4100-0634, -0635: Power Distribution Module
4100-5152, -5153, -5154, 5155: Auxiliary Power Supply
4100-6033, -9829: Alarm Relay Card
4100-3201, -3202,-3203,-3204,-3206: Auxiliary Relay Modules
4100-0620: Basic Transponder Interface Card
4100-6043, -6044: Converter
4100-6045: Decoder Module
4100-6054: Fiber Optic Driver
4100-5115: Expansion NAC
4100-9816: Master Clock Interface
4100-6048: VESDA Interface
4100-5311,-5313,-5325,-5327: Extended Power Supply
4100-6103: Dual Class A Isolator
4100-5120, -5121, -5122: True Alert Power Supply
4081-9306, -9308: Expansion Battery Charger
4100-2140: Rack Mount Bay Mounting Kit
4100-2144: Rack Mount PDM Mounting Kit
4100-0156: Eight Volt Converter
4100-0625: Local Mode Transponder Interface Card
4601-9100, -9108,-9109,-9110,-9111: Local Mode Controller
4100-0623: Basic Network Transponder Interface Card

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4100-0621, -0622, -1341: Audio Riser Module

4100-6036, -6037,-6101,-6102: Physical Bridge Assembly

4100-9849, -9863: TCP/IP Physical Bridge Assembly (Style 4)

4100-9850, -9864: TCP/IP Physical Bridge Assembly (Style 7)

4100-6056: Wired Media Card

4100-6057: Fiber Optic Media Card

4100-9620: Analog Audio Expansion Bay

4100-9621: Digital Audio Expansion Bay

4100-1210: Analog Audio Controller Card

4100-1211, -1311: Digital Audio Controller Card

4100-1212 thru -1225, 1261, -1262: Analog Audio Amplifier

4100-1312 thru -1325, -1361, -1362: Analog Audio Amplifier

4100-1226 thru -1239, 1263, -1264: Digital Audio Amplifier

4100-1326 thru -1339, -1363, -1364: Digital Audio Amplifier

4100-1240: Audio Input Option Card

4100-1241, -1242: Message Expansion Card

4100-1243, -1244: Microphone Module

4100-1245, -1248, -1266: Amplifier Expansion NAC

4100-1246, -1249, -1267: Amplifier Class A Adapter

4100-1252, thru -1255: Audio Operator Interface Module

4100-1270: Master Telephone Assembly

4100-1271: Remote Telephone

4100-1272: Expansion Phone Card

4100-1273: Telephone Class A Adapter

4100-5116: Expansion Signal Card

4100-1259, -1260, -1268: Constant Supervision NAC Modules

4100-1265: Degrade Fail-Safe Microphone Module

4100-6068: TFX Interface Module

4100-6072, 6073, 6074, 6075: Fiber Optic Modem 9402

4100-9842: Fiber Modem Audio Expansion Board

4100-9901 thru -9926, -9930 thru -9939: Retro-fit Kits

4100-5013: Zone Relay 8-point I/O Security Card

4100-7153, -7155: Display Replacement

4100-9401, -9403, -9423, -9441, -9443: Remote User Interface

4100-0640: FUI Controller Memory Add-on Module

4100-7157: Expanded Memory CPU Card

4100-6065: BMUX Communication Card

2081-9046: Coil Supervision Module

4100-6066: TFX Loop Card

4100-5130: TFX Voltage Regulator Module

4100-1340: TFX Audio Interface Module

4100-1297: TFX Phone Card

4100-1298: TFX Master Telephone with Phone Card

4100-6069: BACpac Ethernet Module

4100-1274: Microphone Multiplex Module

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4100-6047: Building Network Interface Card
4190-6104: Remote Service Gateway
4100-6077: MX Loop Interface Card
4100-5124: TrueAlert Class A Adapter
4100-5128: Battery Distribution Terminal Module
4100-6046: Dual RS232 Interface Module
4100-6061: Modular Network Interface Assembly
4100-3113: IDNET 2 Sprinkler Card
4100-9157: ES Net NDU w/2x40 LCD Display
4100-9158: ES Net NDU w/2x40 LCD Display & W/VOICE
4100-9163: NDU w/ Flexible User Interface
4100-9168: NDU w/VOICE and Flexible User Interface
4100-9357: EPS Net NDU w/2x40 LCD Display & W/Voice
4100-9358: EPS Net NDU W/Voice and Flexible User Interface
4100-6104: ES Network Interface Card (slot type)
4100-6310: ES Network Interface Card (flat type)
*4100-6320: ES Net Network Bridge Interface Card (flat type) for 4100ES
4100-6307: ES Net Dual Channel DSL Media Card
4100-6308: ES Net Dual Channel Single-Mode Fiber Media Card
4100-6309: ES Net Dual Channel Multimode Fiber Media Card
4100-6306: ES Net Dual Channel Ethernet Media Card
4100-6110, 4100-6111: BACpac Ethernet Module
2975-9407: 4100U/ES BOX, #1 ONE BAY RED
2975-9457: 3BAY BB GDOOR DRPNL PLAT ICMDR
4100-2107: 2 BAY GLASS DR&RET PLAT ICMNDR
4100-2108: 3 BAY GLASS DR&RET PLAT ICMNDR
4100-2127: 2 BAY GLASS DR&RET RED ICMNDR
4100-2128: 3 BAY GLASS DR&RET RED ICMNDR
4100-2145: RACKMT OPTION BAY MTNG KIT
4100-5401: ES-PS Power Supply
4100-5402: ES-XPS Power Supply
4100-5403: ES-BPS Wiring Harness
4100-5450: NAC Card
4100-5451: IDNAC Card
4100-7161: 4100U ES-PS Upgrade Kit
4100-5131: Fan Module
4100-0644, 4100-0645, 4100-0646, 4100-0647: Wiring Harnesses
4100-9720: 4120 Network Card, with ES-PS,CPU,2x40 Display
4100-9722: 4120 Network Card, with ES-PS,CPU, InfoAlarm Display with Raised Keys
4100-9724: 4120 Network Card, with ES-PS, CPU, InfoAlarm Display with Flat Keys
4100-9730: 4120 Network Cardx2, with ES-PSx2, CPUx2, Voice, 2x40 Display
4100-9732: 4120 Network Cardx2, with ES-PSx2,CPUx2,Voice, InfoAlarm Display with Raised Keys
4100-9734: 4120 Network Cardx2, with ES-PSx2, CPUx2, Voice, InfoAlarm Display with Flat Keys

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4100-9750: ES-PS, 2x40 Display, CPU, ES Network Interface Card

4100-9752: ES-PS, InfoAlarm Display with Raised Keys, CPU, ES Network Interface Card

4100-9754: ES-PS, Infoalarm Display w/Flat Keys, CPU Card, ES Network Inteface Card

4100-9760: ES-PSx2, 2x40 Display, CPUx2, ES Network Interface Cardx2, Voice

4100-9762: ES-PSx2, InfoAlarm Display,Raised Keys, CPUx2, ES Network Interface Cardx2

4100-9764: ES-PSx2, InfoAlarm Display with Flat Keys, CPUx2, ES Network Interface Cardx2

4100-9834: Media Card Mounting Assembly

4100-3208: 4 Point I/O 10A Auxiliary Relay Card

4100-3209: 8 Point I/O 3A Auxiliary Relay Card

4100-3207: 4 Point I/O 2A Aux Relay Card

4100-9706: Master Controller with ES Power Supply and ES Touch Screen Display

4100-9755: ES Net NDU with ES Power Supply and ES Touch Screen Display

4100-9765: ES Net Voice NDU with ES Power Supply and ES Touch Screen Display

4100-9725: 4120 NDU with ES Power Supply and ES Touch Screen Display

4100-9735: 4120 Voice NDU with ES Power Supply and ES Touch Screen Display

4100-9616: Remote Annunciator with ES Touch Screen Display

4100-9617: Basic Remote Annunciator with ES Touch Screen Display

4100-7162: 4100+ Master Controller Upgrade with ES Touch Screen Display

4100-7163: ES Touch Screen Display UI Upgrade for 4100+ Cabinet with ES Master Controller

4100-7164: 4100U Master Controller Upgrade with ES Touch Screen Display

4100-7165: ES Touch Screen Display UI Upgrade for 4100ES and 4010ES

4100-1412: Audio Master Controller

4100-1411: Digital Audio Card. When option 4100-1412 is selected, the Digital Audio Card 4100-1411 is provided.

4100-6120: Single Mode Left Port Fiber Optic

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Fire Engineering Division

Modem

4100-6121: Single Mode Right Port Fiber Optic

Modem

4100-6122: Multimode Left Port Fiber Optic

Modem

4100-6123: Multimode Right Port Fiber Optic

Modem

4190-9035, -9036, -9037, -9038, -9039, -9040:

Fiber Optic Modem

RATING: 120, 220, 240 VAC primary; 24 VDC secondary

INSTALLATION: In accordance with listee's printed installation instructions, NFPA 72, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model/catalog number, electrical rating, and UL label.

APPROVAL: Listed as fire alarm control units suitable for use with separately listed compatible initiating and indicating devices. Also suitable for high-rise applications. The control unit is compatible with the Model 4090-9007 Signal Individual Addressable Module (CSFM Listing No. 7165-0026:0318). These control units can generate a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72. This control unit meets the requirements of UL 864, 10th Edition.

NOTE: 1. For Fire Alarm Verification feature (delay of the fire alarm signal), the maximum Retard/Reset/Restart period shall not exceed 30 seconds.

2. Combined from 7170-0026:0250

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Fire Engineering Division

S Simplex

True*Alert* **Multi-Candela Notification Appliances**

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

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

Features

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

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

Operates over a two-wire SmartSync circuit to provide:

- Horns that are controlled separately from strobes on the same two-wire circuit
- "On-until-silenced" and "on-until-reset" operation on the same two-wire pair
- SmartSync horn activation of Temporal pattern, March Time pattern (at 60 BPM), or on continuously
- Strobe appliances on the same circuit operating at a synchronized 1 Hz flash rate
- Class B operation requires connection to a compatible SmartSync NAC or to SmartSync Control Module (SCM) 4905-9938
- Class A operation when connected to the 4905-9938 SCM or with 4100U series fire alarm control panel NACs

Wall mount A/Vs features:

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

Optional adapters and wire guards:

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

Visible notification appliance (strobe):

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

Audible notification appliance (horn):

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

Wall and Ceiling Mount A/Vs

Description

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

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

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

Strobe Intensity Selection

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

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7125-0026:317 for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. Refer to page 2 for listing status of wire guards. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

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, 4007ES Hybrid, 4008, 4010, 4010ES, 4100ES, and 4100U Fire Alarm Control Panels** (refer to individual product data sheets for more information)
- **4009 IDNet NAC Extender** (refer to data sheet S4009-0002)
- **SmartSync Control Module (SCM)** 4905-9938 (refer to data sheet S4905-0003)

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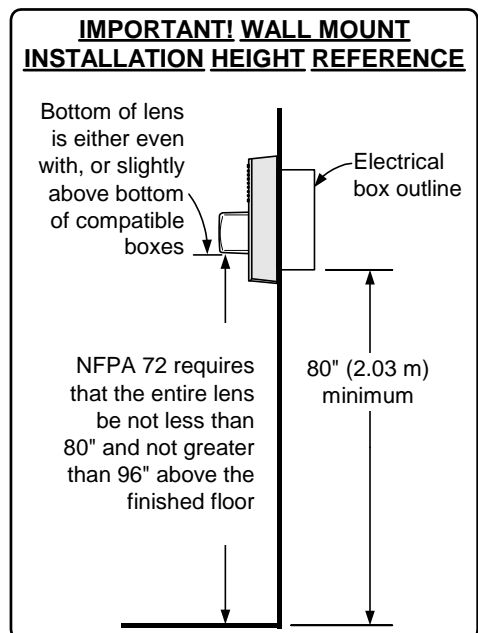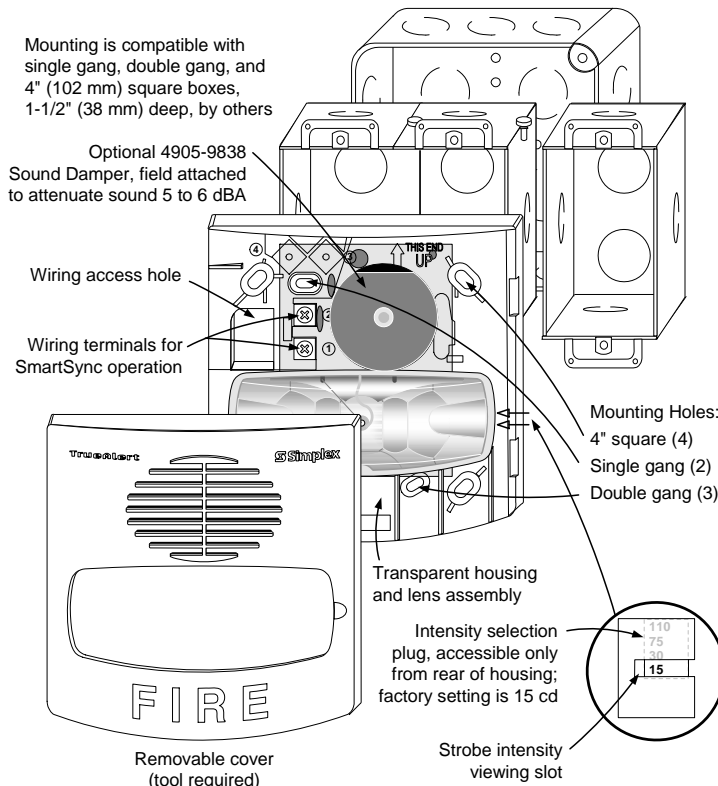
Product Selection

Multi-Candela A/Vs

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

Wall Mount A/V Accessories

Model	Description		Dimensions
4905-9937	Red	Surface Mount Adapter Skirt; use to cover 1-1/2" (38 mm) deep surface mounted boxes	5-3/8" H x 5-1/4" W x 1-5/8" D (136 mm x 133 mm x 41 mm) depth with strobe = 4-3/8" (111 mm)
4905-9940	White		
4905-9931	Red Adapter Plate for mounting to Simplex 2975-9145 box (typically for retrofit, may be mounted vertical or horizontal)		8-5/16" x 5-3/4" x 0.060" Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Red Mounting Box, requires Adapter Plate 4905-9931		7-7/8" x 5-1/8" x 2-3/4" D (200 mm x 130 mm x 70 mm)
4905-9838	Optional Sound Damper; package of 20; field installed adhesive backed horn output attenuator; reduces output 5 to 6 dBA **NOTE:** After Sound Damper installation, measure sound level to ensure compliance with applicable code requirements		1-3/4" Diameter (44.5 mm) with 0.31" (8 mm) sound opening

SmartSync Control Module

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

Replacement Covers for Wall Mount A/Vs

Model	Description	Dimensions
4905-9994	Red cover with white "FIRE" lettering	5-1/8" H x 5" W x 1-1/2" D (130 mm x 127 mm x 38 mm)
4905-9995	White cover with red "FIRE" lettering	

Wire Guards and Ceiling Mount A/V Adapter

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

* UL listed by Space Age Electronics Inc.

A/V Specifications

Wall Mount or Ceiling Mount, Common Specifications

Rated Voltage Range	UL Listed Rating	Regulated 24 DC; see Note 1 below
	ULC Listed Rating	20 VDC to 30 VDC per ULC S526-M878
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 mm² to 3.31 mm²); two wires per terminal for in/out wiring
Horn Output Characteristics		2400 to 3700 Hz sweep, modulated at 120 Hz rate

Horn Output Ratings @ 10 ft (3 m) (see Note 2)	Voltage	**16 VDC**		**24 VDC**		**33 VDC**	
	Sound Type (see Note 2)	**Steady**	**Coded**	**Steady**	**Coded**	**Steady**	**Coded**
	UL 464 Reverberant Chamber	86 dBA	82 dBA	88 dBA	84 dBA	90 dBA	86 dBA
	Anechoic Chamber	92 dBA	91 dBA	94 dBA	95 dBA	96 dBA	96 dBA

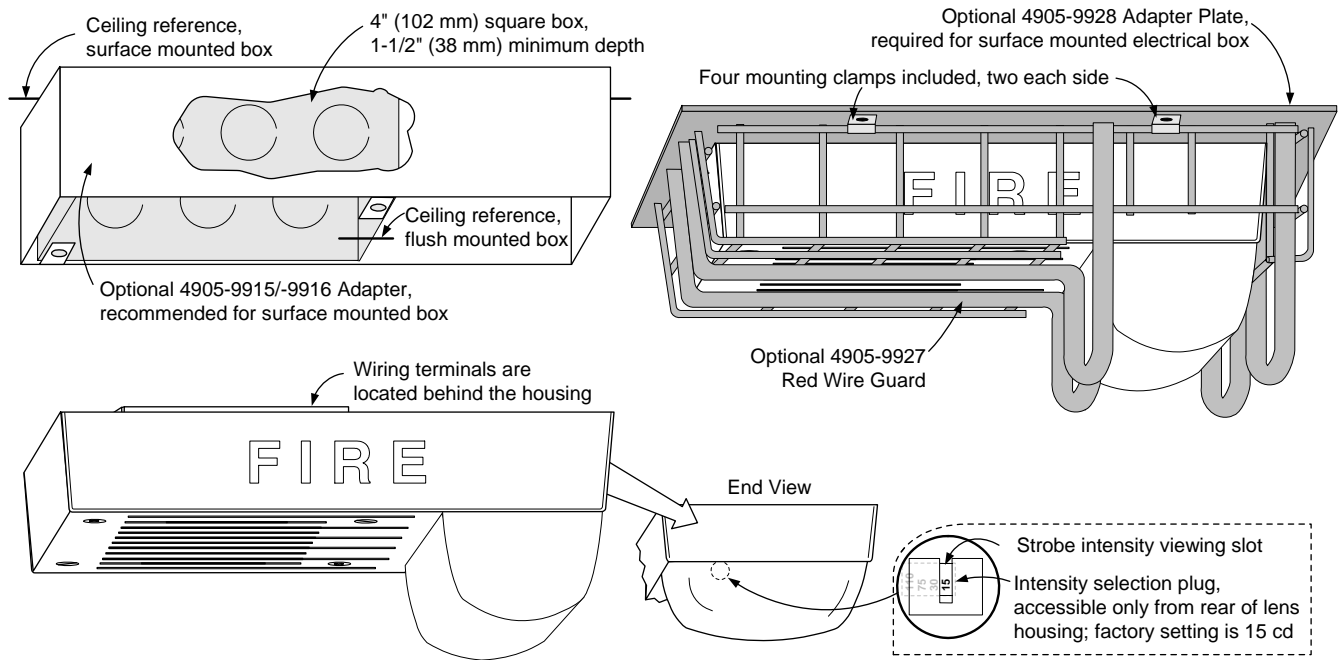| **Wall Mount**	Housing Dimensions (with lens)		5-1/8" H x 5" W x 2-3/4" D (130 mm x 127 mm x 70 mm)			
	Maximum RMS Current Rating per Strobe Setting (see Note 3 below)		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			75 mA	**116 mA**	**221 mA**	**285 mA**
	Reference RMS Currents at other voltages	18 VDC	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*. 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. Under the same test conditions, coded horn output "peak" sound level readings are typically 4 dBA higher. Anechoic horn output ratings are typically more representative of actual installed sound output.

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.)
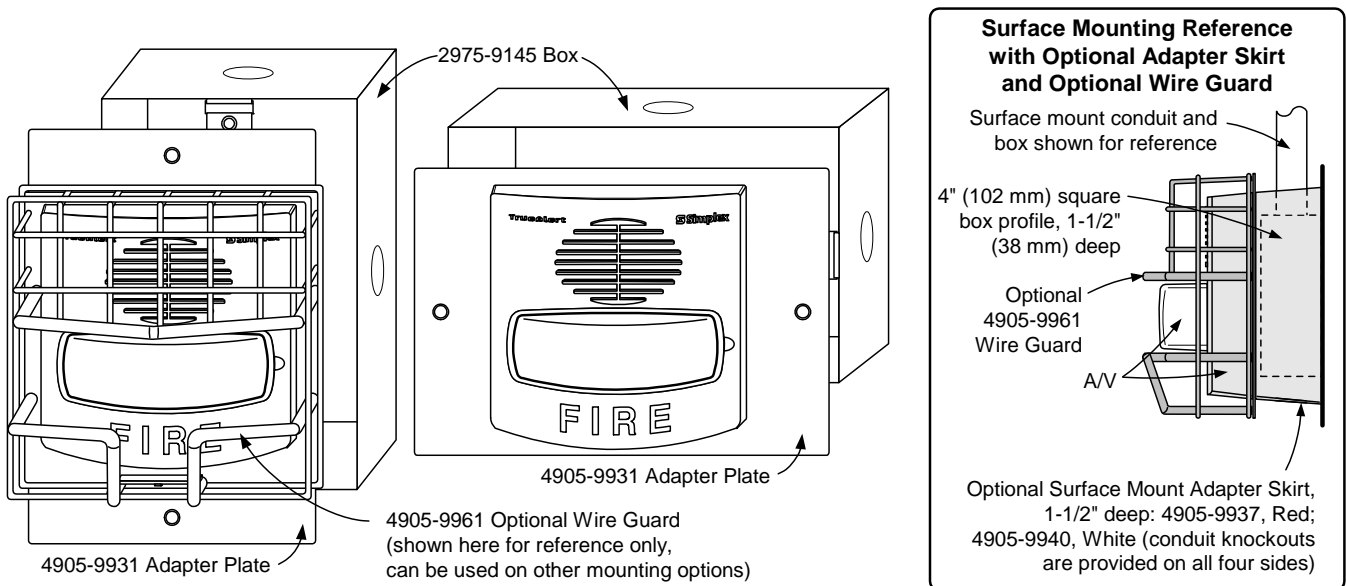
Installation Reference, Surface or Semi-Flush Mounting

Mounting is compatible with single gang, double gang, and 4" (102 mm) square boxes, 1-1/2" (38 mm) deep, by others

Optional 4905-9838 Sound Damper, field attached to attenuate sound 5 to 6 dBA

Wiring access hole

Wiring terminals for SmartSync operation

THIS END UP

Mounting Holes:
4" square (4)
Single gang (2)
Double gang (3)

Transparent housing and lens assembly

Intensity selection plug, accessible only from rear of housing; factory setting is 15 cd

Strobe intensity viewing slot

Removable cover (tool required)

FIRE

IMPORTANT! WALL MOUNT INSTALLATION HEIGHT REFERENCE

Bottom of lens is either even with, or slightly above bottom of compatible boxes

Electrical box outline

NFPA 72 requires that the entire lens be not less than 80" and not greater than 96" above the finished floor

80" (2.03 m) minimum

S4906-0002-6 11/2014

Ceiling Mount A/V and Guard Installation Reference

Ceiling reference, surface mounted box

4" (102 mm) square box, 1-1/2" (38 mm) minimum depth

Optional 4905-9928 Adapter Plate, required for surface mounted electrical box

Four mounting clamps included, two each side

Ceiling reference, flush mounted box

F I R E

Optional 4905-9915/-9916 Adapter, recommended for surface mounted box

Optional 4905-9927 Red Wire Guard

Wiring terminals are located behind the housing

F I R E

End View

Strobe intensity viewing slot

Intensity selection plug, accessible only from rear of lens housing; factory setting is 15 cd

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

2975-9145 Box

Surface Mounting Reference with Optional Adapter Skirt and Optional Wire Guard

Surface mount conduit and box shown for reference

4" (102 mm) square box profile, 1-1/2" (38 mm) deep

Optional 4905-9961 Wire Guard

A/V

F I R E

4905-9931 Adapter Plate

4905-9931 Adapter Plate

4905-9961 Optional Wire Guard (shown here for reference only, can be used on other mounting options)

Optional Surface Mount Adapter Skirt, 1-1/2" deep: 4905-9937, Red; 4905-9940, White (conduit knockouts are provided on all four sides)

Simplex

LISTING SERVICE

LISTING No.	7125-0026:0317	Page 1 of 1

CATEGORY: 7125 -- FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models 4906-9127, 4906-9129 wall mount and Models 4906-9128 and 4906-9130 ceiling mount multi-candela horn/strobes.

*Models 4906-9158 and 4906-9159 TrueAlert non-addressable, horn/strobes ceiling mount multi-candela notification appliances.

Refer to listee's data sheet for detailed product description and operational considerations.

RATING: Electrical: 16-33 Vdc
Candela: 15, 30, 75, 110cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction. For indoor use only.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as multi-candela horn/strobes with a signaling appliance suitable for the hearing impaired when used with listee's separately listed fire alarm control units. All models require the use of Model 4905-9938 (CSFM Listing No. 7125-0026:235) sync control module unless the horn/strobes are used with the listee's Model 4010 (CSFM Listing No. 7165-0026:0226), 4100 (CSFM Listing No.7165-0026:0251) or 4007 (CSFM Listing No. 7165-0026:0378). Refer to listee's Installation Instruction Manual for details.

*Revision 04-24-20 VWW

Date Issued: **July 01, 2022**	*Listing Expires* **June 30, 2023**

Authorized By: ***VICTOR WONG**, Program Coordinator*

Fire Engineering Division

Features

Individually addressable manual fire alarm stations with:

- Power and data supplied by IDNet or MAPNET II addressable communications using a single wire pair
- Operation that complies with ADA requirements
- Visible LED indicator that flashes during communications and is on steady when the station has been activated
- The NO GRIP Single Action Station and Retrofit Kit are available with a more easily operated pull lever for applications where anticipated users may find the standard station lever difficult to activate
- Pull lever that protrudes when alarmed
- Break-rod supplied (use is optional)
- Models are available with single or double action (breakglass or push) operation
- UL listed to Standard 38
- NEMA 1 rated. See Addressable manual station product selection for more information.

Compatible with the following Simplex control panels:

- Model Series 4007ES, 4008, 4010, 4010ES, 4100ES, 4100U, 4020, 4100, and 4120 fire alarm control panels equipped with either IDNet or MAPNET II communications
- Model Series 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Compact construction:

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

Tamper resistant reset key lock, keyed same as Simplex fire alarm cabinets.

Multiple mounting options:

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

Description

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

Operation

Activation of the 4099-9004 single action manual station requires a firm downward pull to activate the alarm switch. Completing the action breaks an internal plastic break-rod which is visible below the pull lever, use is optional. The use of a break-rod can be a deterrent to vandalism without interfering with the minimum pull requirements needed for easy activation. The pull lever latches into the alarm position and remains extended out of the housing to provide a visible indication.

Single Action NO GRIP Station 4099-9021. For applications such as California Building Code, Title 24, which requires "Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist" the model 4099-9021 station provides a more easily operated pull lever compared to standard stations. Retrofit of existing stations is available using the 4099-9805 Retrofit kit.
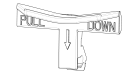
Double Action Stations (Breakglass) require the operator to strike the front mounted hammer to break the glass and expose the recessed pull lever. The pull lever then operates as a single action station.
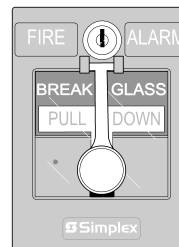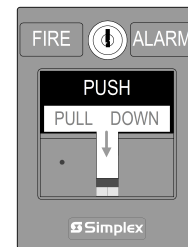

4099-9004 Single action

4099-9021 NO GRIP Single action

4099-9805 NO GRIP Retrofit kit

4099-9005 Breakglass

4099-9006 Push

With 2099-9828 Institutional Cover kit

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

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

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

Specifications

Refer to *4099 MAPNET II/ IDNet Addressable Manual Pull Station with LED Installation Instructions 579-1135* for additional information.

Table 1: Specifications

Specification	Rating
Power and communications	IDNet or MAPNET II communications, 1 address for each station
Address means	DIP switch, 8 position
Wire connections	Screw terminal for in/out wiring, for 18 AWG to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
UL listed temperature range	32°F to 120°F (0°C to 49°C) intended for indoor operation
Humidity range	Up to 93% RH at 100°F (38°C)
Housing color	Red with white raised lettering
Material	Housing and pull lever are Lexan polycarbonate or equal
Pull lever color	White with red raised lettering
Housing dimensions	5 in. H x 3 3/4 in. W x 1 in. D (127 mm x 95 mm x 25 mm)

Addressable manual station semi-flush mounting
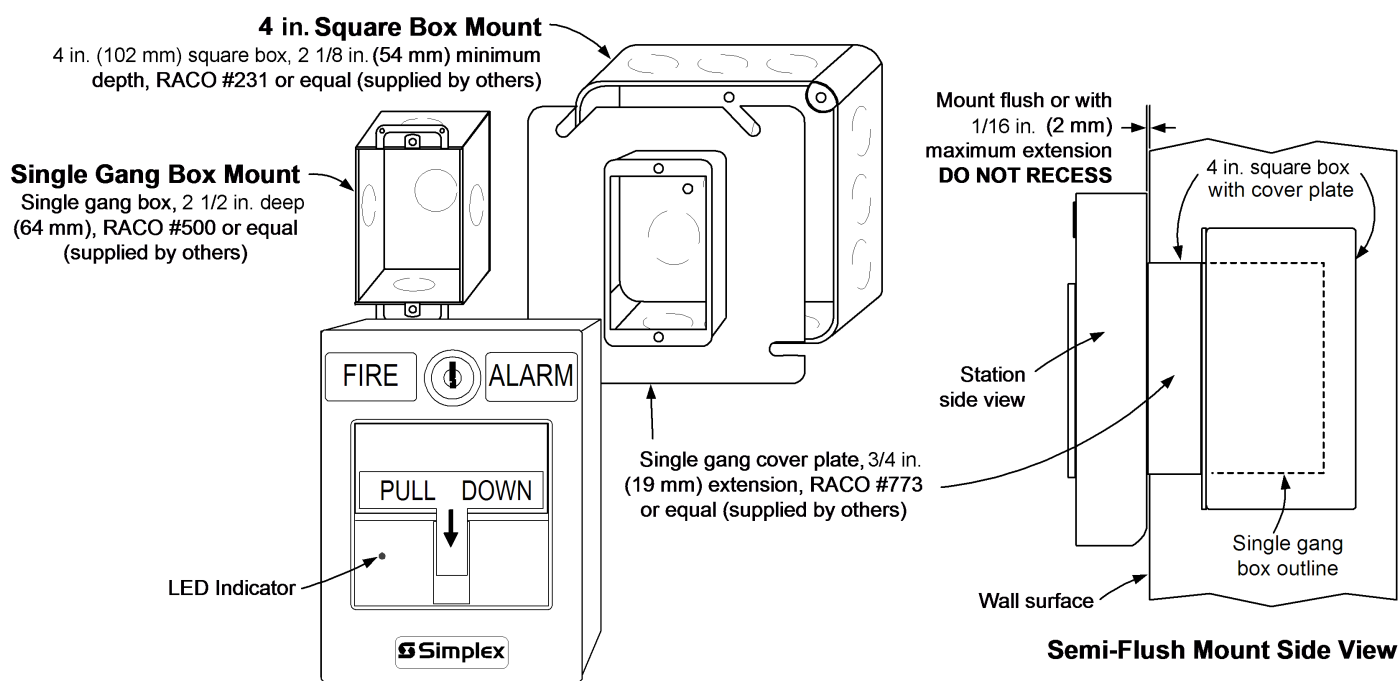
Figure 1: Addressable manual station semi-flush mounting

Addressable manual stations surface mounting

Preferred mounting. For surface mounting of these addressable manual stations, the preferred electrical boxes are shown in Figure 2.

Additional mounting reference. See Addressable manual station, additional mounting information for Wiremold box mounting compatibility.

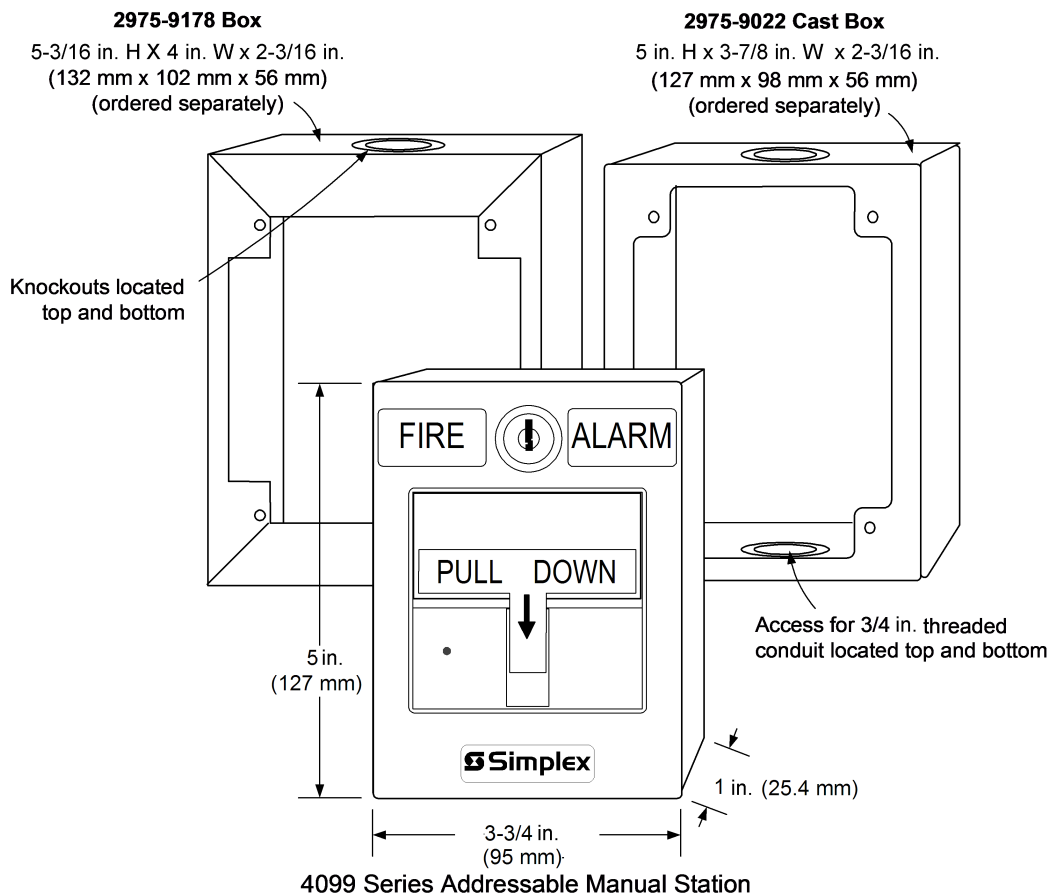Figure 2 shows the 2975-9178 box and the 2975-9022 cast box.

2975-9178 Box
5-3/16 in. H X 4 in. W x 2-3/16 in.
(132 mm x 102 mm x 56 mm)
(ordered separately)

2975-9022 Cast Box
5 in. H x 3-7/8 in. W x 2-3/16 in.
(127 mm x 98 mm x 56 mm)
(ordered separately)

Knockouts located top and bottom

FIRE ALARM

PULL   DOWN

Simplex

5 in.
(127 mm)

Access for 3/4 in. threaded conduit located top and bottom

1 in. (25.4 mm)

3-3/4 in.
(95 mm)

4099 Series Addressable Manual Station

Figure 2: 4099 Series addressable manual station

Surface mount side view with internal detail

Figure 3 shows the 2975-9178 box.
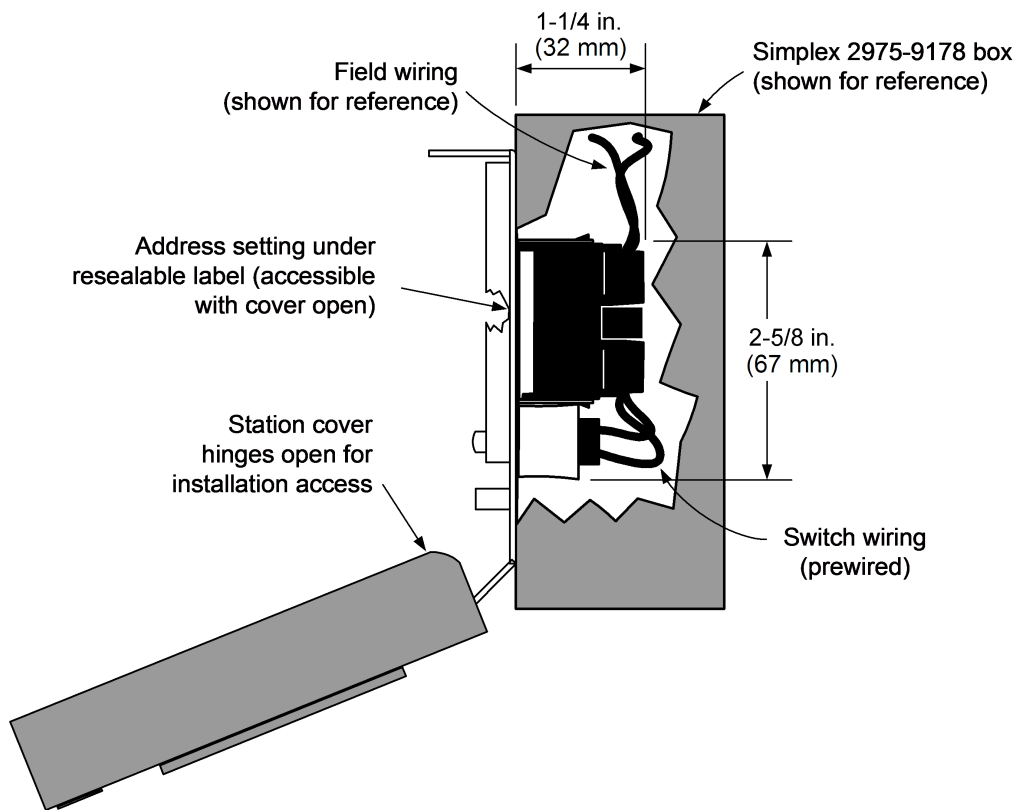
Figure 3: Surface mount side view with internal detail

Application reference

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

1. Stations shall be located in the normal path of exit and distributed in the protected area such that they are unobstructed and readily accessible.
2. Mounting shall be with the operable part not less than 42 in. (1.07 m) and not more than 48 in. (1.22 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 Figure 4. Figure 4 shows the 2099-9814 surface trim for Wiremold boxes and the 2099-9813 semi-flush trim for 2 gang switch boxes.

2099-9814 <u>Surface</u> trim for Wiremold box 5-1/8 in. H x 5 in. W (130 mm x 127 mm)

Wiremold receptacle box model V5744-2 (supplied by others)

Addressable station

FIRE · ALARM

PULL DOWN

Simplex

Two gang switch box, each 3 in. H x 2 in. W x 2-3/4 in. D (76 mm x 51 mm x 70 mm) (supplied by others)

2099-9813 Semi-flush trim for 2 gang switch box, 6 in. H x 4-1/2 in. W (152 mm x 114 mm)
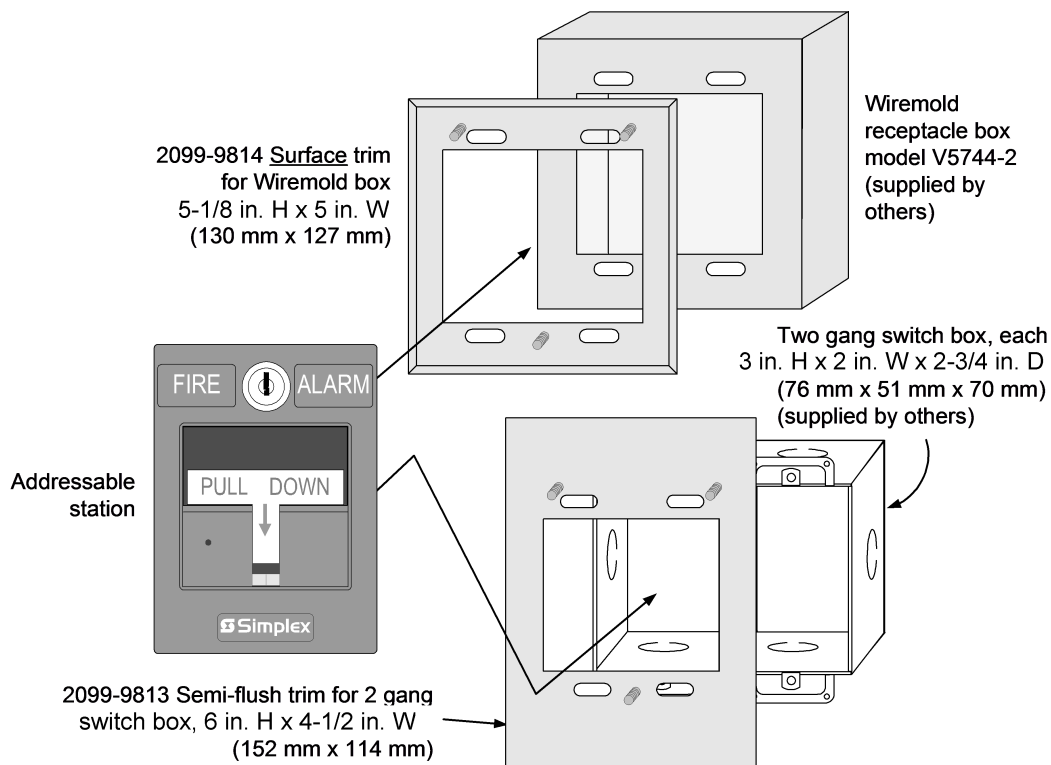
Figure 4: Addressable manual station, additional mounting information

Addressable manual station, flush mounting information

Flush mount adapter kit 2099-9819, Black 2099-9820, Beige

Box **must** be recessed into wall 1 in. to 1-1/8 in. (25.4 mm to 29 mm)

FIRE · ALARM

PULL DOWN

Simplex

8 in. (203 mm)

6 in. (152 mm)

Hole cutout **must** be a minimum of 6 in. H by 5 in. W (152 mm by 127 mm)

4-11/16 in. (119 mm) square box, 2-1/8 in. (54 mm) minimum depth (by others)

Wall surface

4-3/4 in. (121 mm)

6-3/4 in. (171 mm)

Front View

Side View
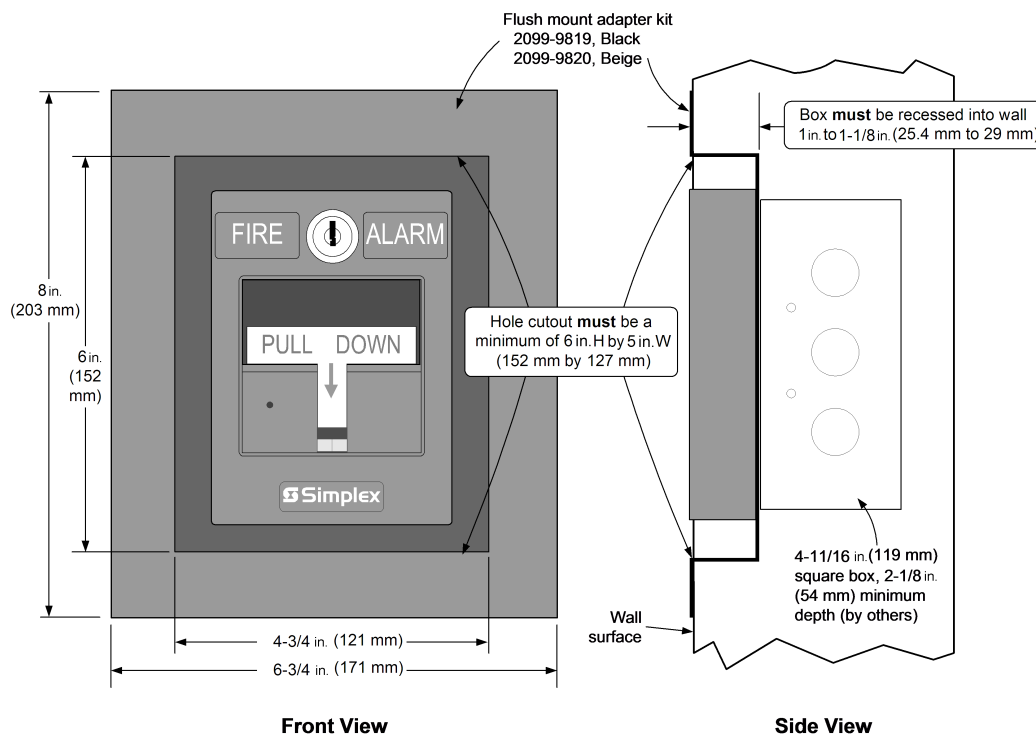
Figure 5: Addressable manual station, flush mounting information

The flush mount adapter kit is available in beige (2099-9820) or black (2099-9819).

Addressable manual station product selection

Table 2: Addressable manual station product selection red housing with white letters and white pull lever

Model	Description	Housing	Pull lever	Listings
4099-9004, see note	Single Action, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM
4099-9004CB, see note	Single Action, Bilingual English and French	FEU FIRE	TIREZ PULL	ULC
4099-9004CF, see note	Single Action, French	ALARME FEU	ABAISSEZ	
4099-9004PO, see note	Single Action, Portuguese	FOGO ALARME	PUXE	UL, FM
4099-9004SP, see note	Single Action, Spanish	ALARMA FUEGO	JALE	
4099-9005, see note	Double Action, Breakglass operation, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM
4099-9005PO, see note	Double Action, Breakglass operation, Portuguese	FOGO ALARME	PUXE	UL, FM
4099-9005SP, see note	Double Action, Breakglass operation, Spanish	ALARMA FUEGO	JALE	
4099-9006, see note	Double Action, Push operation, English	FIRE ALARM	PUSH PULL DOWN	UL, ULC, FM, CSFM
4099-9006PO, see note	Double Action, Push operation, Portuguese	FOGO ALARME	EMPURRE PUXE	UL, FM
4099-9006SP, see note	Double Action, Push operation, Spanish	ALARMA FUEGO	EMPUJE JALE	
4099-9021, see note	Single Action NO GRIP operation, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM

Note: NEMA 1 rated when used with 2975-9178 back box.

Table 3: Accessories

Model	Description
2975-9022	Cast aluminum surface mount box, red
2975-9178	Surface mount steel box, red
2099-9813	Semi-flush trim plate for double gang switch box, red
2099-9819	Flush mount adapter kit, black
2099-9820	Flush mount adapter kit, beige
4099-9805	Retrofit Kit for field conversion of a single action station to a NO GRIP station; refer to the *NO GRIP Actuator (4099-9805) Installation Instructions 579-1007* for details
2099-9803	Replacement breakglass
2099-9804	Replacement break-rod
2099-9828	Institutional cover kit for field installation on 4099-9004; **Note:** Covers LED indicator
2099-9814	Surface trim plate for Wiremold box V5744-2, red
2099-9822	Replacement retaining clip for breakglass
252-019	B key for manual station reset.

LISTING SERVICE

LISTING No. 7150-0026:0224   Page 1 of 1

CATEGORY: 7150 -- FIRE ALARM PULL BOXES

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models 4099-9001, -9002, -9003, -9004, -9005, -9006,-9010, -9011, -9012, -9013, -9014, -9015, -9020, -9021, *-5212, *-5213, *-5214, and *-5215 non-coded addressable manual pull stations. Model 4099-9805 Conversion Kit, Models 4099-9001, -9004, -9010, -9013, -9020 and -9021 are single action stations. Models 4099-9005, -9011 and -9014 are breakglass stations. Models 4099-9003, -9006, -9012 and -9015 include a push bar which must be punched in before being able to grab and pull down the actuating handle. Model 4099-9805 is a retrofit Kit handle for field conversion of a single action station to a NO GRIP station. *Models 4099-5213 and 4099-5214 are single-action addressable pull stations activated by a pull lever. *Models 4099-5212 and 4099-5215 are double-action addressable pull stations activated by glass break and pull lever. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 30 VDC
*40 VDC, 2.6 mA for Models 4099-5212, -5213, -5214, -5215

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as manual pull stations for use with separately listed compatible fire alarm control units. For indoor use only. Refer to listee's Installation Instruction Manual for details. These manual pull boxes meet the requirements of UL Standard 38, *8th Edition and California amendments.

*Rev. 04-27-22 DAL

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2022**   *Listing Expires* **June 30, 2023**

Authorized By: **VICTOR WONG**, *Program Coordinator*

Fire Engineering Division

℥ Simplex

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

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 4007ES, 4008, 4010, 4010ES, and 4100ES fire alarm control panels for IDNet communications
- Model Series 4100/4100U/4100ES, 4120, 4020, and 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Model 4090-9001:

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

Model 4090-9051:

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

IDNet communications provides current limited monitoring:

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

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

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

UL listed to Standard 864

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-0026:223 for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products .
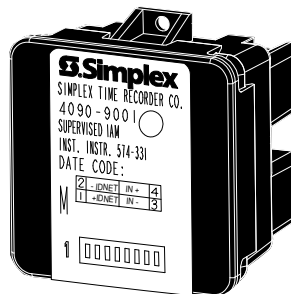
4090-9001 Supervised IAM
(shown approximately 3/4 size)
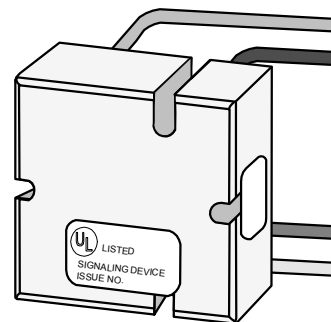
4090-9051 Supervised IAM
(shown approximately 3/4 size)

Description

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

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

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

Operation

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

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

Current Limited Operation Applications

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

IAM Product Selection

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

Optional Trim Plates and Mounting Bracket for Model 4090-9001

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

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

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

Specifications

Electrical

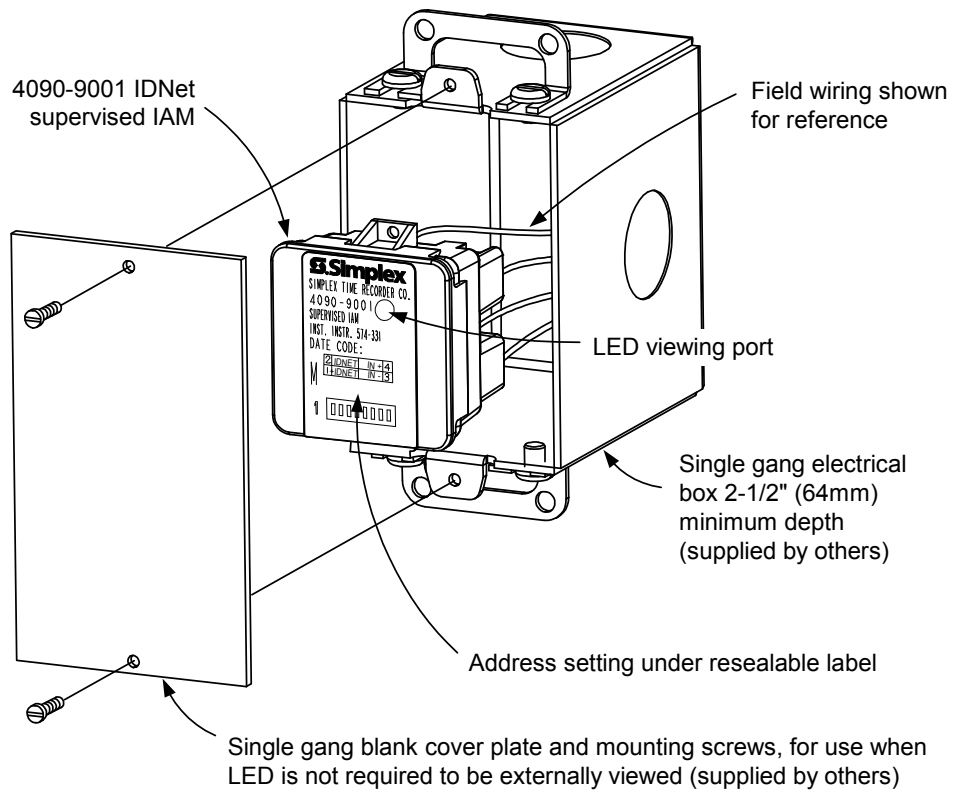|		
Power and Communications		MAPNET II or IDNet, auto selected, 1 address per IAM
Input Requirements		Normally open, dry contacts
Wire Connections	4090-9001	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
	4090-9051	Color coded wire leads, 18 AWG (0.82 mm^2), 8" long (203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

Wiring Distances

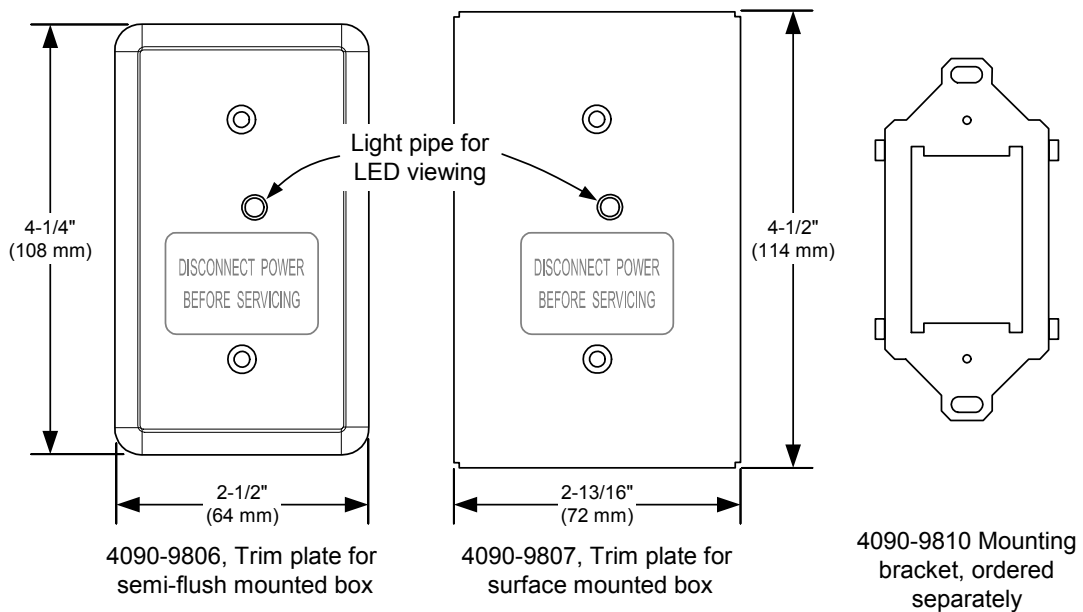|	
Distance from IAM to Contacts	500 ft (152 m) maximum without protectors
	400 ft (122 m) maximum with 2081-9044 Overvoltage Protectors
Wiring Distance Reference per channel, MAPNET II or IDNet Communications	2500 ft (762 m) maximum from fire alarm control panel
	10,000 ft (3048 m) maximum total wiring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

Mechanical

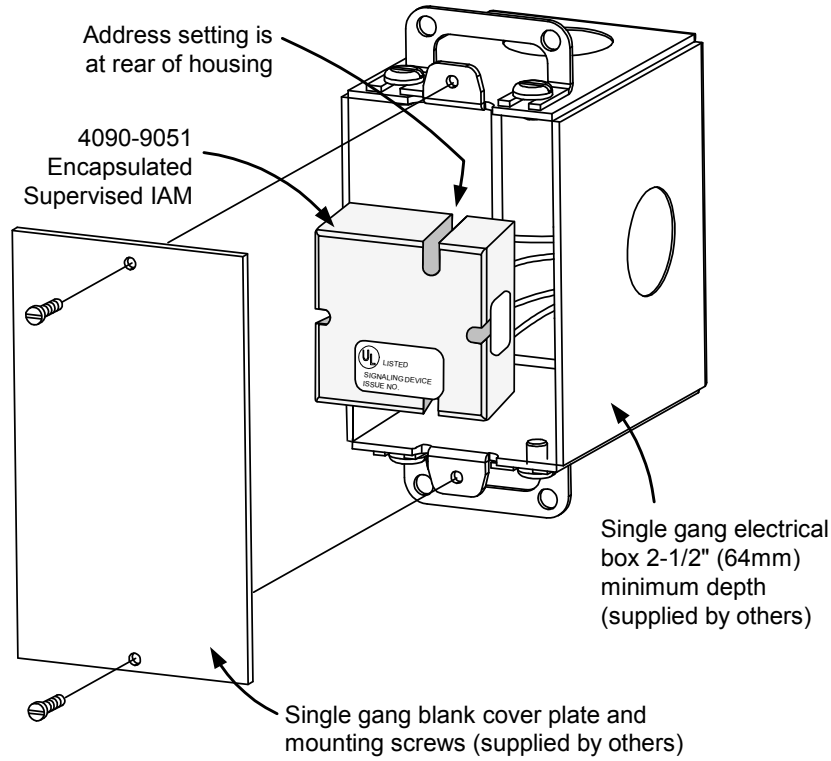|		
Dimensions	4090-9001	1-9/16" W x 1-3/4" H x 1-1/4" D (40 mm x 44 mm x 32 mm)
	4090-9051	1-9/16" W x 1-9/16" H x 9/16" D (40 mm x 40 mm x 14 mm)
Housing Material, 4090-9001		Black thermoplastic
Encapsulation Material, 4090-9051		Epoxy, beige
Temperature Range		32° to 158° F (0° to 70° C); intended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

Mounting Reference, Single Gang Blank Cover Plate

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

Optional Trim Plates and Mounting Bracket for Visible LED

Address setting is
at rear of housing

4090-9051
Encapsulated
Supervised IAM

UL LISTED
SIGNALING DEVICE
ISSUE NO.

Single gang electrical
box 2-1/2" (64mm)
minimum depth
(supplied by others)

Single gang blank cover plate and
mounting screws (supplied by others)

$\boldsymbol{\mathcal{S}}$**Simplex**   *Tyco Fire Protection Products • Westminster, MA • 01441-0001 • USA*   S4090-0001-12 8/2016
www.simplex-fire.com

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LISTING SERVICE

LISTING No.	7300-0026:0223	Page 1 of 1

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models* 4090-9001, -9001TSP, -9001TTP, and -9051 Supervised IAM Monitor Module; 4090-9002, -9002TSP, and -9002TTP IAM Relay Module; 4090-9106, -9106TSP, and-9106TTP Class "A" ZAM Initiating Module; 4090-9101, -9101TSP, and -9101TTP Class "B" ZAM Initiating Module; and 2190-9173 Two-Point I/O Module. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 24 VDC
30 VDC for Models 4090-9002 series

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. For indoor use only. Refer to listee's Installation Instruction Manual for details.

NOTE:

*Recert. 03-29-2006 jw

Date Issued: **July 01, 2022**   Listing Expires   **June 30, 2023**

Authorized By: **VICTOR WONG**, Program Coordinator

Fire Engineering Division

S.Simplex

UL, CSFM Listed;
MEA (NYC) Acceptance*

Features

**UL listed under Standard 864 as Control Unit
Accessory (UOXX)**

Track mount package availability:

- Single relay module or four relay module, with or
  without cover, with SPDT or DPDT contacts
- LED indicates relay module status
- Cover provide status LED viewing ports
- Multiple coil voltage inputs, diode polarized for DC
- Modules are track mounted with snap-apart feature
  design allowing the four relay module to be separated

**Single encapsulated SPDT relay package with
color coded 18 AWG wire leads, available in two
versions:**

- 2088-9021 (PAM-1) Provides diode polarized multiple
  input voltage ability and LED indication
- 4098-9843 (PAM-SD) Provides a diode polarized
  24 VDC coil with in/out wiring

Description

These multi-purpose control relays offer SPDT or DPDT,
10 A (or 7 A) contacts in a variety of mechanical
packages. Models are available for coil operation by one
of four input voltages allowing a single relay to be
energized from a voltage source of 18-35 VDC or VAC,
120 VAC, or 230 VAC (not available with 4098-9843).
Voltage selection is made by wiring to the appropriate
input terminals or wire leads.

Each relay model (except model 4098-9843) contains a
red LED which indicates that the relay is energized.

Mounting options are varied for application flexibility.
Track mounted relays may be "snapped apart" from a
standard four-module assembly and used independently if
desired.

Specifications

Track Mount Relays, see page 2 for dimensions

Coil Voltage	18-35 VAC/VDC, 120, or 230 VAC
Coil Current	SPDT models = 18 mA DPDT models = 40 mA
Terminal Blocks	Up to 14 AWG (2.08 mm^2)
Contact Ratings	10 A @ 120 VAC
	N.O. rated 1/6 HP, N.C. rated 1/8 HP
	7A @ 28 VDC and @ 230 VAC

Temperature Ratings

UL Listed Range	32° F to 120° F (0° C to 49° C)
Humidity	85% RH Non-condensing
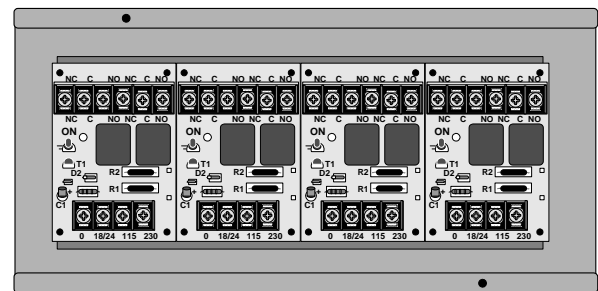
2088-9020, MR204/C, Four DPDT Relay Package
with Enclosure (shown with cover removed)
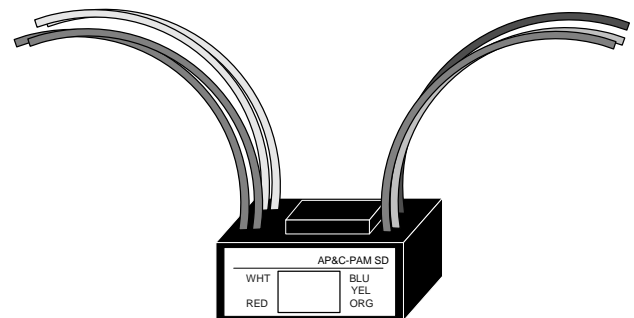
Encapsulated Relay Package
(typical of 2088-9021, PAM-1 and 4098-9843, PAM-SD)
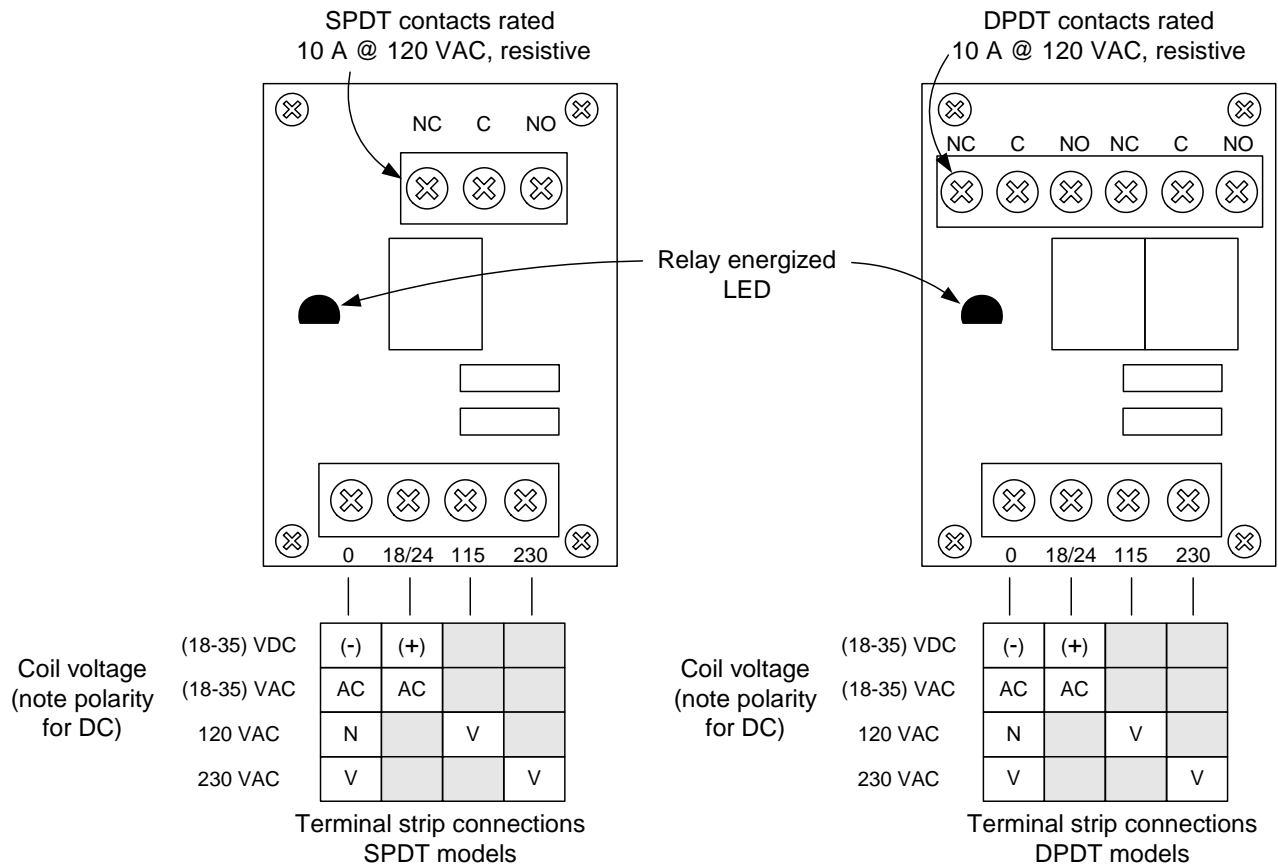
Specifications *Continued*

Encapsulated Relays, see page 2 for dimensions

Connections	18 AWG (0.82 mm^2) color-coded wire leads

Relay 2088-9021

Contact Ratings		10 A @ 120 VAC, resistive
Coil Ratings	Voltage	18-35 VAC/VDC, 120, or 240 VAC
	Current	15 mA @ 24 VAC/VDC, & @ 120 or 230 VAC

Relay 4098-9843

Coil Ratings	18-32 VDC input, polarized, 15 mA @ 24 VDC
Contact Ratings	7 A at 0.35 p.f @ 28 VDC & 120 VAC
	250 µA @ 5 VDC

Temperature Ratings

UL Listed Range	32° F to 120° F (0° C to 49° C)
Humidity	100% RH, condensing

* Listings are under Apollo America Inc. per model numbers
  shown on page 2. See CSFM Listing 7300-1004:0101 for
  allowable values and/or conditions concerning material
  presented in this document.

Relay Selection Chart

Module Positions	Reference Number	Model Number	Relay Type	Packaging	Dimensions
One	2088-9007	MR-101/T	SPDT	Track mount, without cover	3-1/4" H x 2-1/8" W x 1-1/2" D (83 mm x 54 mm x 38 mm)
	2088-9009	MR-201/T	DPDT		
	2088-9008	MR-101/C	SPDT	Track mount with cover	5-1/8" H x 3-1/8" W x 2-1/2" D (131 mm x 79 mm x 64 mm)
	2088-9010	MR-201/C	DPDT		
Four	2088-9017	MR-104/T	SPDT	Track mount, without cover	3-1/4" H x 8-1/2" W x 1-1/2" D (83 mm x 216 mm x 38 mm)
	2088-9019	MR-204/T	DPDT		
	2088-9018	MR-104/C	SPDT	Track mount with cover	5-1/8" H x 9-1/2" W x 2-1/2" D (131 mm x 241 mm x 64 mm)
	2088-9020	MR-204/C	DPDT		
NA	2088-9021	PAM-1	SPDT	Encapsulated, multi-voltage coil, color coded 18 AWG (0.82 mm^2) wire leads, with coil status LED	1-1/2" H x 1" W x 7/8" D (38 mm x 25.4 mm x 22 mm)
	4098-9843	PAM-SD		Encapsulated, 24 VDC coil, color coded 18 AWG (0.82 mm^2) wire leads (no LED)	1-1/2" H x 1-3/16" W x 13/16" D (38 mm x 30 mm x 21 mm)

Track Mount Relay Wiring Reference

SPDT contacts rated 10 A @ 120 VAC, resistive

DPDT contacts rated 10 A @ 120 VAC, resistive

Relay energized LED

Terminal strip connections SPDT models

Terminal strip connections DPDT models

LISTING SERVICE

LISTING No.	7300-1004:0101	Page 1 of 1

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE:

Apollo America Inc.30 Corporate Drive, Auburn Hills, MI 48326
Contact: Dale Howells (248) 332-3900 Fax (248) 332-8807
Email: dale.howells@apollo-fire.com

DESIGN:

Models MR-101/C, *MR-101/C/R, *MR-101-SSE/C, *MR-101-SSE/C/R, MR-104/C,
*MR_104/C/R, *MR-104-SSE/C, *MR-104-SSE/C/R, MR-201/C, MR-201/C/*R,
*MR-201-SSE/C, *MR-201-SSE/C/R, MR-204/C, MR-204/C/*R, *MR-204-SSE/C,
*MR-204-SSE/C/R, PAM-1, PAM-2, PAM-3, PAM-4, PAM-SD, RIC-1, RIC-2, RIC-3, RIC-4,
MR-RIC-301/*C, *MR-RIC-301/C/R, MR-RIC-305*/C, * MR-RIC-305/C/R, MR-RIC-401*/C,
MR-RIC-401/C/R, MR-RIC-405/C and *MR-RIC-405/C/R relay modules. *Models MR-ITM/C
and MR-ITM/C/R relay modules (with test mode). Refer to listee's data sheet for detailed
product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instruction, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, electrical rating and UL label.

APPROVAL: Listed as relay modules for use with separately listed compatible fire alarm control units. Refer to manufacturer's Installation Manual for details.

NOTE: 1. Formerly Air Products and Controls, Inc.

*Rev. 04-03-14 gt

Date Issued: **July 01, 2022**   Listing Expires   **June 30, 2023**

Authorized By: **VICTOR WONG**, Program Coordinator

Fire Engineering Division

⚡Simplex

Addressable Initiation Peripherals

UL, ULC, CSFM Listed;
FM Approved*

IDNet and MAPNET II Communicating Devices
Model 4090-9008 Dual Contact Relay IAM

Features

Dual Contact Relay IAM (Individual Addressable Module):

- A single addressable point provides control and status tracking of two, 2 A Form "C" contacts
- Low power latching relay design allows IDNet or MAPNET II communications to supply both data and module power
- Relay is set to OFF on initial power up and upon loss of IDNet or MAPNET II communications

For use with following Simplex control panels:

- Model Series 4007ES, 4010ES, 4100ES, and 4100U fire alarm control panels for IDNet communications
- Model Series 4100/4100U/4100ES, 4120, 4020, and 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Compact construction:

- Mounts in standard 4" (102 mm) square electrical box, optional adapter bracket is available to mount in a 4 $\frac{11}{16}$" square electrical box
- Screw terminals for wiring connections
- Visible LED flashes to indicate communications, can be selected at panel to indicate activated state
- Optional 4" square box covers are available to allow LED to be viewed after installation

UL listed to Standard 864

Description

Dual Contact Relay IAMs allow fire alarm control panels to control two remotely located Form "C" contact using IDNet or MAPNET II 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.
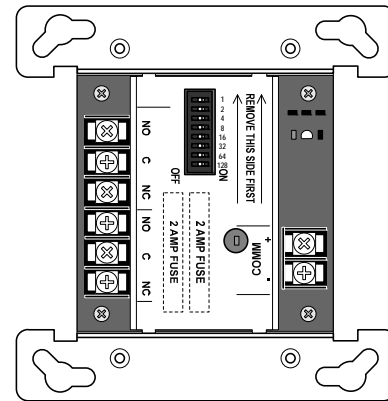
Product Selection

Model	Description
4090-9008	Dual Contact Relay IAM

Optional Adapter Plates

Model	Description	
4090-9813	Adapter plate to fit 4 $\frac{11}{16}$" (119 mm) square electrical box	
4090-9801	For semi-flush mounted box	Optional trim plate for 4" boxes with LED viewing window, includes mounting screws; galvanized steel
4090-9802	For surface mounted box	

4090-9008 Dual Contact Relay IAM
(shown approximately 1/2 size)

Specifications

Communications	IDNet or MAPNET II communications, 1 address per device
Power	Supplied by communications
Installation Instructions	579-1040
IDNet Firmware	Requires 3.12.04 or higher

Contact Ratings* (not rated for incandescent switching)

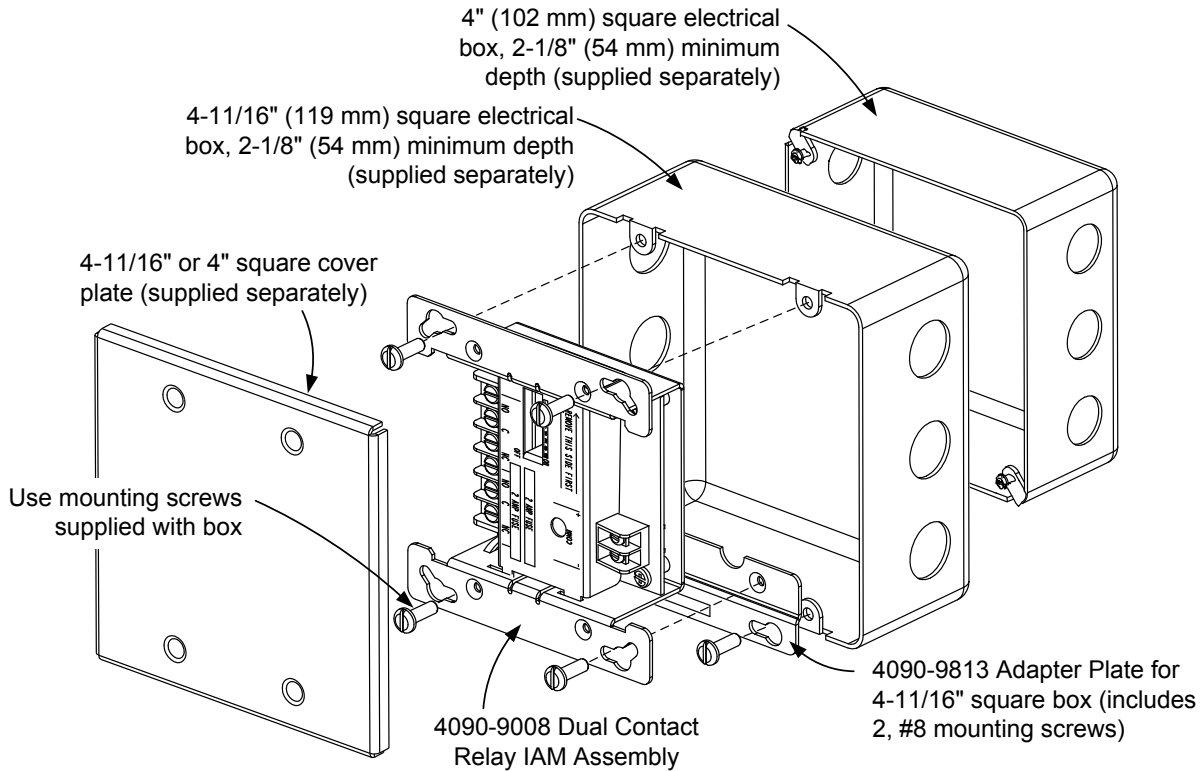|		
Type	Dual Form C contacts (DPDT) with terminal block access to Common, N.O., and N.C for each contact	
Power-Limited	2 A @ 30 VDC, resistive	from listed fire alarm supply
	1 A @ 30 VDC, inductive	
Nonpower-Limited	0.5 A @ 125 VAC, resistive	
Relay Fusing	Each contact common is fused with a 2 A fast acting non-time delay fuse	

* Provide external 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.
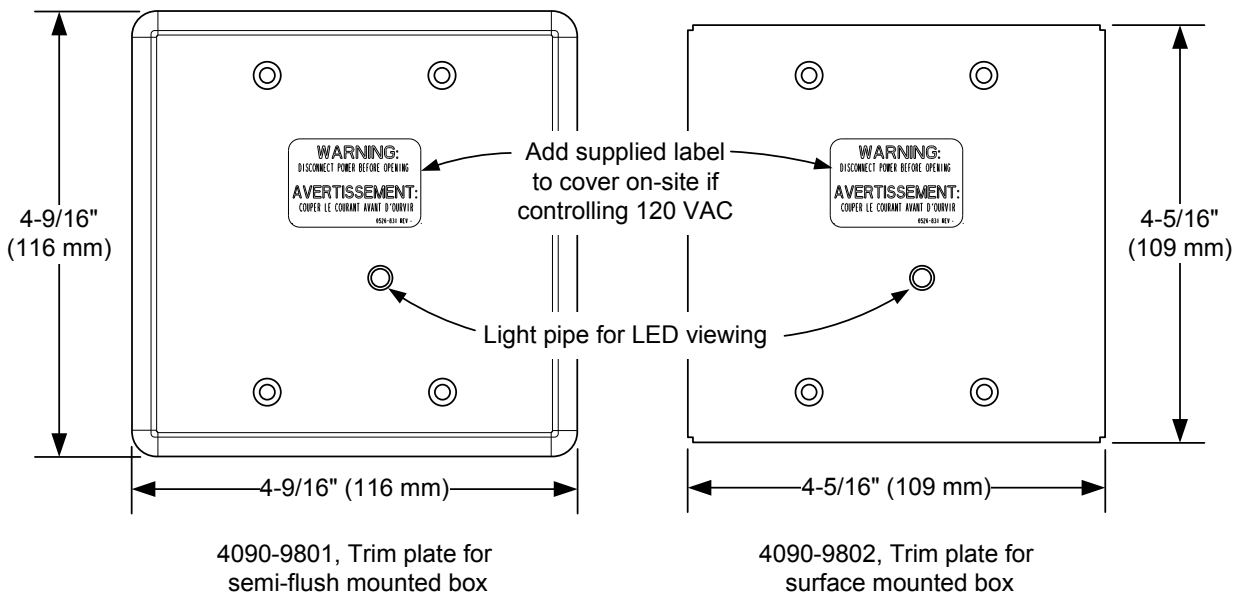Refer to Installation Instructions for additional information.

Wire Connections	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 to 2.08 mm^2)
IDNet or MAPNET II Communications 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 $\frac{1}{8}$" H x 4" W x 1 $\frac{3}{8}$" D (105 mm x 102 mm x 35 mm)
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)

4" (102 mm) square electrical
box, 2-1/8" (54 mm) minimum
depth (supplied separately)

4-11/16" (119 mm) square electrical
box, 2-1/8" (54 mm) minimum depth
(supplied separately)

4-11/16" or 4" square cover
plate (supplied separately)

Use mounting screws
supplied with box

4090-9813 Adapter Plate for
4-11/16" square box (includes
2, #8 mounting screws)

4090-9008 Dual Contact
Relay IAM Assembly

Mounting Reference with 4-11/16" Square and 4" Square Boxes

4-9/16"
(116 mm)

Add supplied label
to cover on-site if
controlling 120 VAC

WARNING:
DISCONNECT POWER BEFORE OPENING
AVERTISSEMENT:
COUPER LE COURANT AVANT D'OUVRIR

4-5/16"
(109 mm)

Light pipe for LED viewing

4-9/16" (116 mm)

4-5/16" (109 mm)

4090-9801, Trim plate for
semi-flush mounted box

4090-9802, Trim plate for
surface mounted box

Optional Trim Plates for 4" Square Boxes with Visible LED

LISTING SERVICE

LISTING No.	7300-0026:0311	Page 1 of 1

CATEGORY:　　7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE:　　Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN:　　Models 4090-9118 relay IAM (individually addressable module) module, 4090-9119 relay IAM module with unsupervised feedback, 4090-9008 dual relay IAM, *4090-9010 eight amp relay IAM and 4090-9120 six-point I/O module. (IAM). Refer to listee's data sheet for detailed product description and operational considerations.

RATING:　　30 VDC

INSTALLATION:　　In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING:　　Listee's name, model number, electrical rating and UL label.

APPROVAL:　　Listed as control unit accessories for use with listee's separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

*Rev. 04-24-13 gt

Date Issued:　　**July 01, 2022**　　　　　　*Listing Expires*　　**June 30, 2023**

Authorized By:　　**VICTOR WONG**, *Program Coordinator*

Fire Engineering Division

UL, ULC, CSFM Listed;FM Approved*

Features

TrueAlarm analog sensing provides the following features

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

For use with the following Simplex products

- 4007ES, 4010, 4010ES, 4100ES, and 4100U Series control units ; and 4008 Series control units with reduced feature set (refer to data sheet *S4008-0001* for details)
- 4020, 4100, and 4120 Series control units, Universal Transponders, and 2120 TrueAlarm CDTs equipped for MAPNET II operation

Fire alarm control unit provides the folloing features

- Peak value logging with accurate analysis of each sensor for individual sensitivity selection
- Sensitivity monitoring meets 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 for each foot
- Display and print detailed sensor information in plain English language

Photoelectric smoke sensors provide the following features

- Sensitivity levels from 0.2% to 3.1%. See TrueAlarm sensors for more information.

Heat sensors have these features

- Three fixed temperature sensing thresholds: 135°F, 155°F and 190°F
- Rate-of-rise temperature sensing
- Utility temperature sensing
- Listed to UL 521 and ULC-S530

General features

- Ceiling or wall mounting
- Listed to UL 268 7th Edition and ULC-S529
- NEMA 1 rated. See TrueAlarm analog sensing product selection chart for more information.
- 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 testing
- Different bases support a supervised or unsupervised output relay, or a remote LED alarm indicator

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

Description

Digital communication of analog sensing

TrueAlarm analog sensors provide an analog measurement digitally communicated to the host control panel using Simplex addressable communications. The control unit analyses the data, determines an average value and stores it. Comparing the sensor's present value against its average value and time, determines an alarm or other abnormal condition.

Intelligent data evaluation

Monitoring each sensor's average value provides a continuously shifting reference point. A software filtering process compensates for environmental factors, such as dust and dirt, and component aging, to provide an accurate reference for evaluating new activity. This filtering reduces the probability of false or nuisance alarms caused by shifts in sensitivity, either up or down.

Control unit selection

The control unit stores peak activity for each sensor to assist in evaluating specific locations. The host control unit determines the alarm set point for each TrueAlarm sensor, selectable as more or less sensitive as the individual application requires.
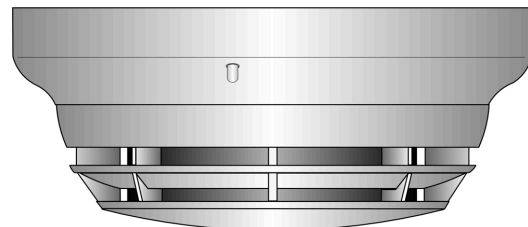

**Figure 1: 4098-9714 TrueAlarm
photoelectric sensor mounted in base**

Timed/multi-stage selection

You can program the sensor alarm set points for timed automatic sensitivity selection, such as more sensitive at night, less sensitive during day. You can program the control unit to provide multi-stage operation for each sensor.

Sensor alarm and trouble LED indication

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

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

· 2098-9808 remote LED alarm indicator or 4098-9822 relay (relay is unsupervised and requires separate 24 VDC)

Supervised relay bases not compatible with 2120 CDT:

· **4098-9791, 4-wire sensor base,** use with remote or locally mounted 2098-9737 relay, requires separate 24 VDC

· **4098-9780, 2-wire sensor base,** use with remote or locally mounted 4098-9860 relay, no separate power required

· Supervised relay operation is programmable and can be manually operated from control unit

· Includes wired connections for remote LED alarm indicator **or** 4098-9822 relay, relay is unsupervised and requires separate 24 VDC

Sensor base options

2098-9737, remote or local mount supervised relay

· DPDT contacts for resistive/suppressed loads

· power limited rating of 3 A at 28 VDC

· non-power limited rating of 3 A at 120 VAC, requires external 24 VDC coil power

4098-9860, remote or local mount supervised relay

· SPDT dry contacts, power limited rating of 2 A at 30 VDC, resistive; non-power limited rating of 0.5 A at 125 VAC, resistive

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 at 28 VDC; non-power limited rating of 1/2 A at 120 VAC, (requires external 24 VDC coil power)

4098-9832, adapter plate

· Required for surface or semi-flush mounting to 4 in. square electrical box and for surface mounting to 4 in. octagonal box

· Can be used for cosmetic retrofitting to existing 6 3/8 in. diameter base product

2098-9808, remote red LED alarm indicator
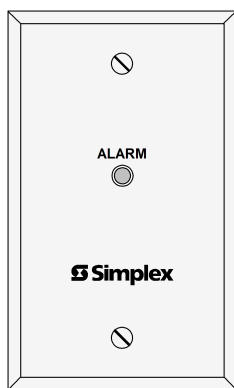
· Mounts on single gang box

Figure 2: Remote red LED alarm indicator

Description

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

You can easily interchange different TrueAlarm sensor types to meet specific location requirements. This feature allows intentional sensor substitution during building construction. When conditions are temporarily dusty, you can install heat sensors without reprogramming the control unit, as covering smoke sensors causes them to be disabled. Although the control unit 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 in the box: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

With relay in the box : 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring
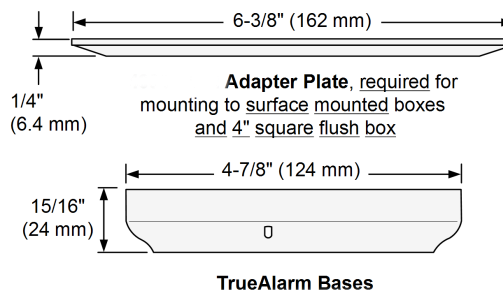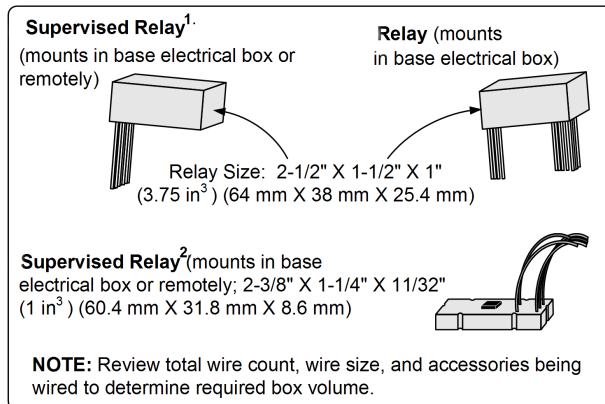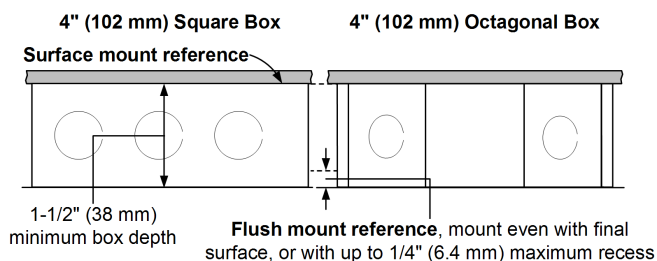
Figure 3: Mounting reference

Table 1: Product mounting - SKU reference

Product	SKU
Relay	4098-9822
Supervised relay	Example 1 2098-9739
	Example 2 4098-9860
Adapter plate	4098-9832
TrueAlarm bases	4098-9780, 4098-9789, 4098-9791, 4098-9792

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 and ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135°F (57.2°C) 190°F (88°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

Note: 190°F (88°C) ratings apply only to the 4098-9734 sensor.

Smoke sensors

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

4098-9714 photoelectric sensor

TrueAlarm photoelectric sensors use a stable, pulsed LED light source and a silicon photodiode receiver to deliver consistent and accurate low power smoke sensing. There are three user-selectable sensitivities for special applications for each individual sensor: 0.2%, 0.5%, and 1% for each foot. Standard sensitivity is 1.25% to 3.1% for each foot. The fire alarm control unit runs an algorithm that can vary the sensitivity for normal applications between 1.25% and 3.1% for each foot.

Note: Fixed sensitivity settings higher than 1.0% for each foot are not UL268 7th Edition compliant.

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.
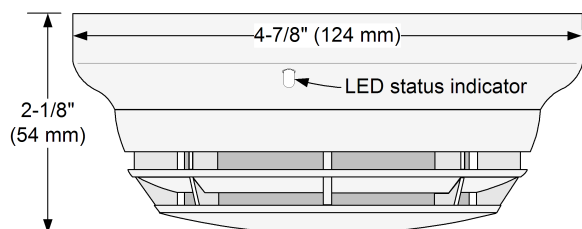

Figure 4: 4098-9714 photoelectric sensor with base

4098-9733 and 4098-9734 heat sensors

TrueAlarm heat sensors are self-restoring and provide rate-compensated, fixed temperature sensing, you can select 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 unit.

You can select rate-of-rise temperature detection at the control unit for either 15°F or 20°F, (8.3°C or 11.1°C) for each minute. Fixed temperature sensing is independent of rate-of-rise sensing and you can program it to operate at 135°F or 155°F (57.2°C or 68°C). The 4098-9734 sensor provides an additional 190°F (88°C) set point.

In a slowly 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.

You can program TrueAlarm heat sensors as a utility device to monitor for temperature extremes in the range of 32°F to 155°F (0°C to 68°C). This feature can provide freeze warnings, or alert you to HVAC system problems. Refer to panel specifications for availability.
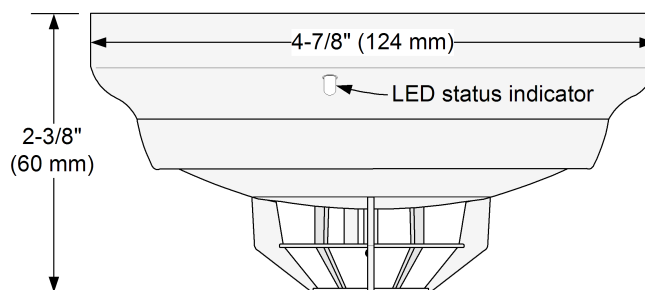
Figure 5: 4098-9733 heat sensor with base
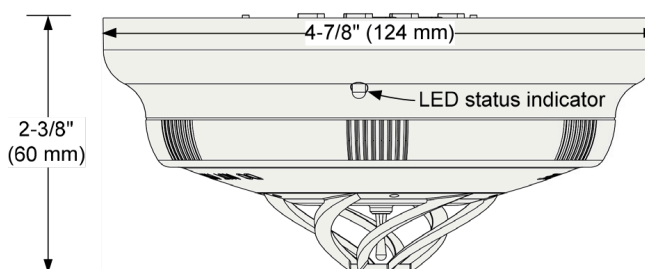
Figure 6: 4098-9734 high temperature heat sensor with base

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.

Application reference

Sensor locations should be determined only after careful consideration of the physical layout and contents of the area to be protected. Refer to NFPA 72, *the National Fire Alarm and Signaling Code*. On smooth ceilings, a smoke sensor spacing of 30 ft (9.1 m) can be used as a guide.

For detailed application information including sensitivity selection, refer to *Installation Instructions 574-709*.

TrueAlarm analog sensing product selection chart

Table 2: TrueAlarm sensor bases (for use with sensors 4098-9714 and 4098-9733)

SKU	Color	Description	Compatibility	Mounting requirements
4098-9792 GSA4098-9792	White	Standard sensor base	No options	4 in. octagonal or 4 in. square box, 1 1/2 in. min. depth; or single gang box, 2 in. min. depth
4098-9776	Black			
4098-9789 4098-9789IND GSA4098-9789	White	Sensor base with connections for remote LED alarm indicator **or** unsupervised relay	2098-9808 remote alarm indicator or 4098-9822 unsupervised relay	4 in. octagonal or 4 in. square box **Note:** Box depth requirements depend on total wire count and wire size, see Table 4 for reference.
4098-9775	Black			
4098-9791 **Note:** NOT compatible with the 2120 CDT	White	4-wire sensor supervised relay base with connections for LED indicator or unsupervised relay	2098-9737 supervised remote relay	
			2098-9808 remote alarm indicator or 4098-9822 unsupervised relay	
4098-9780 GSA4098-9780 **Note:** NOT compatible with the 2120 CDT	White	2-wire sensor supervised relay base with connections for LED indicator or unsupervised relay	4098-9860 supervised remote relay	
			2098-9808 remote alarm indicator or 4098-9822 unsupervised relay	

Note: SKU numbers ending in IND are assembled in India. SKU numbers with GSA prefix are assembled in the USA.

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

Table 3: TrueAlarm sensors

SKU	Color	Description	Compatibility	Mounting requirements
4098-9714 4098-9714-IND GSA4098-9714	White	Photoelectric smoke sensor	Bases 4098-9775, 4098-9776, 4098-9792, 4098-9789, 4098-9791, and 4098-9780	Refer to base requirements
4098-9774	Black			
4098-9733 GSA4098-9733	White	Heat sensor		
4098-9778	Black			
4098-9734 GSA4098-9734	White	High temperature heat sensor		

Note:

· All of these SKUs are NEMA 1 rated.
· The 4098-9734 Heat Sensor is compatible with IDNet on the 4100ES, 4010ES, and 4007ES only.
· SKU numbers with GSA prefix are assembled in the USA.

Table 4: TrueAlarm sensor/base accessories

SKU	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 in. octagonal or 4 in. square box, 1 1/2 in. minimum depth
4098-9860	Supervised relay, mounts remote or in base electrical box	For use with 4098-9780 base	Base mounting requires 4 in. octagonal box, 2 1/8 in. deep with 1 1/2 in. extension ring
2098-9808	Remote red LED alarm indicator on single gang stainless steel plate	Bases 4098-9789, 4098-9791, and 4098-9780	Single gang box, 1 1/2 in. minimum depth
4098-9822	Unsupervised relay, tracks base led status. **Note:** Mounts only in base electrical box.	Bases 4098-9789, 4098-9791, and 4098-9780	4 in. octagonal box, 2 1/8 in. deep with 1 1/2 in. extension ring
4098-9832	Adapter plate	Bases 4098-9792, 4098-9789, 4098-9791, and 4098-9780	Required for surface or semi-flush mounted 4 in. square box and for surface mounted 4 in. octagonal box

Note: 2098-9808 is NEMA 1 rated.

Specifications

Table 5: General operating specifications

Specification		Rating
Communications and sensor supervisory power		IDNet or MAPNET II communications, auto-selected, one address for each 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 operating temperature range		32°F to 100°F, 0°C to 38°C
Operating temperature range	with 4098-9733 Heat Sensor	32°F to 122°F, 0°C to 50°C
	with 4098-9714 Smoke Sensor	15°F to 122°F, -9°C to 50°C
	with 4098-9734 Heat Sensor	32°F to 150°F, 0°C to 66°C
Storage temperature range		0°F to 140°F, -18°C to 60°C
Humidity range		10% to 95% RH
4098-9714 smoke sensor air velocity rating		0 to 4000 ft/min, 0 to 1220 m/min
Housing color		Frost white or black

Table 6: 4098-9791 Base with supervised remote relay 2098-9737

Specification	Rating
Externally supplied relay coil voltage	18 VDC to 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
Note: See Sensor base options for contact ratings.	

Table 7: 4098-9780 Base with supervised remote relay 4098-9860

Specification	Rating
Power	Supplied from communications

Table 8: 4098-9822 Unsupervised relay, requirements for bases 4098-9789, 4098-9791, and 4098-9780

Specification	Rating
Externally supplied relay coil voltage	18 VDC to 32 VDC, nominal 24 VDC
Supervisory current	Supplied from communications
Alarm current	13 mA from separate 24 VDC supply
Note: See Sensor base options for contact ratings.	

S®**Simplex**

True*Alarm* Analog Sensing

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

Sounder Base 4098-9794 for use with
TrueAlarm Photoelectric and Heat Sensors

Features

Modular TrueAlarm sensor base with built-in electronic alarm sounder:

- Piezoelectric sounder provides high output (88 dBA) with low current requirements (20 mA)
- For use with interchangeable TrueAlarm photoelectric or heat sensors (ordered separately)
- Operation is for ceiling or wall mounting

Sounder operation details:

- Powered from 24 VDC or from a compatible Notification Appliance Circuit (NAC)
- Synchronized via communications or by the NAC, if NAC powered**
- Sounder can be manually activated from the control panel
- Sensor and sounder operation is listed to UL Standard 268
- Sounder operation is also listed to UL Standard 464 as an audible notification appliance

TrueAlarm analog sensing operation:

- Analog sensor information is digitally communicated to the control panel via IDNet or MAPNET II two-wire communications
- Sensor information is processed by the control panel to determine sensor status

**For use with the following Simplex® products:**

- 4007ES, 4010, 4010ES, 4100ES, 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, and Universal Transponders equipped for MAPNET II operation

General features:

- 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 standard bases, refer to data sheet S4098-0019
- For isolator bases, refer to data sheet S4098-0025
- For photo/heat sensors, refer to data sheet S4098-0024 (single address) and S4098-0033 (dual address)
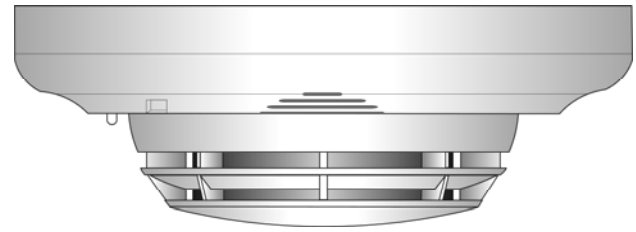
TrueAlarm Photoelectric Sensor Mounted in
Sounder Base 4098-9794

TrueAlarm Analog Sensing Description

Sounder bases combine an audible notification appliance and a TrueAlarm analog sensor to provide:

Digital Communication of Analog Sensing. Sensors provide an analog measurement that is digitally communicated to the control panel where it 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.

Intelligent Data Evaluation. Monitoring each sensor's average value provides a software filtering averaging process that compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. The result 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 control panel, selectable as more or less sensitive as the individual application requires.

Timed/Multi-Stage Selection. 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 that a sensor is in alarm, or that it 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.

Base mounted address selection allows the address to remain with its programmed location when the sensor is removed for service or type change. Access is from the front under the removable sensor.

Automatic sensor type identification provides default sensitivity when substituting sensor types. 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.

Integral red LED indicates power-on by pulsing, or alarm or trouble when steady on. The exact status is annunciated at the fire alarm control panel.

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

Accessories

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

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

2098-9808 Remote LED Alarm Indicator

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

4" (102 mm) Square Box   **4" (102 mm) Octagonal Box**

Surface mount reference

1-1/2" (38 mm) minimum box depth

Flush mount reference, mount even with final surface, or with up to 1/4" (6.4 mm) maximum recess

Note: Single gang adapter plate (RACO No. 787 or equal) is <u>required</u> when using 4" square box (by others)
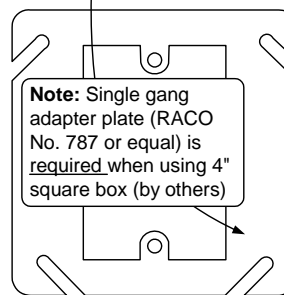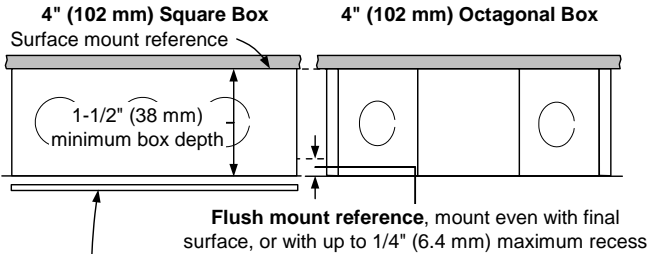
Optional 4098-9822 Relay (Mounts in base electrical box and requires additional volume, see notes below)

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

6-3/8" Dia. x 1/4" thick

4098-9832 Adapter Plate, <u>required</u> for mounting to <u>surface mounted</u> boxes (mounts inverted)

6-7/16" (164 mm)

1-1/8" (29 mm)

LED status indicator

Sound output louvers extend from front to side

(Photoelectric sensor shown for reference)
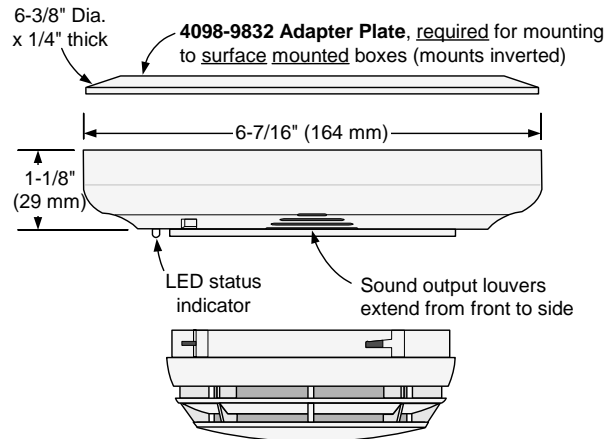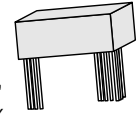
NOTES:

1. Review actual wire size, wire count, box type, and whether 4098-9822 relay is used before determining box size.

2. Mounting to flush mounted box also fits single gang handy box, 2-1/8" (51 mm) deep if wiring allows. (Not applicable if 4098-9822 relay is used.)

3. For surface mounted boxes, use 4" square box with single gang adapter plate (RACO No. 787 or equal, by others) or 4" octagonal box, <u>both</u> <u>require</u> 4098-9832 Adapter Plate.

4. When 4098-9822 relay is used, mount relay in electrical box and use 1-1/2" extension ring (by others) on 4" square or octagonal box of 1-1/2" or 2-1/8" depth as required.

5. Refer to Installation Instructions 574-707 for additional information.

TrueAlarm Analog Sensor Features

Sealed against rear air flow entry

Electronics are EMI/RFI shielded

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 technology sensing

- 360° smoke entry for optimum response

- Built-in insect screens

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. Sensitivities of 0.2%, 0.5%, and 1% are for special applications in clean areas. Standard sensitivities are 1.5%, 2.0%, 2.5%, 3.0%, and 3.7%. Application type and sensitivity are selected and then monitored at the fire alarm control panel.*
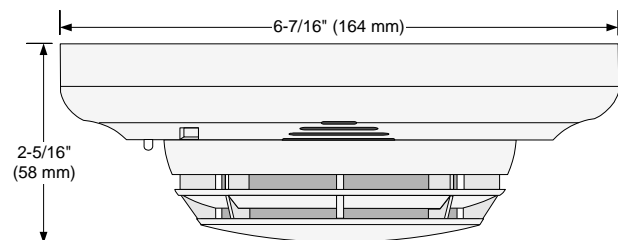
The sensor head design provides 360° smoke entry for optimum smoke response. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.

4098-9714 Photoelectric Sensor with Sounder Base

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*.
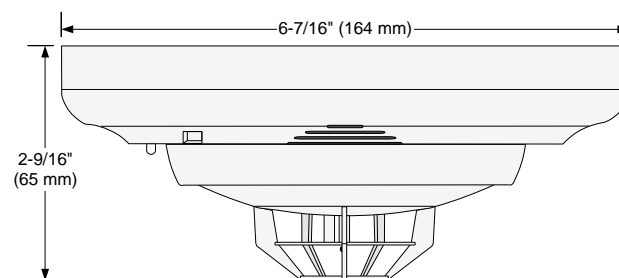
4098-9733 Heat Sensor with 4098-9794 Sounder Base

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.

Application Reference

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

* For detailed application information including sensitivity selection, refer to Installation Instructions 574-709.

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sounder Base*

Model	Description	Compatibility	Mounting Requirements
4098-9794	Sounder Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	**Sensors:** 4098-9714 and 4098-9733	Refer to page 2, mounting reference
		Options: 2098-9808 remote LED alarm indicator **or** 4098-9822 relay	

TrueAlarm Sensors (ordered separately)

Model	Description	Mounting Requirements
4098-9714	Photoelectric Smoke Sensor	Refer to page 2, mounting reference
4098-9733	Heat Sensor	

Sounder Base Accessories (ordered separately if required)

Model	Description		Mounting Requirements
4098-9832	Adapter Plate, **required** for surface mounted 4" electrical boxes		Refer to page 2, mounting reference
2098-9808	Choose **one** if required	Remote red LED Alarm Indicator on single gang stainless steel plate	Single gang box, 1-1/2" minimum depth
4098-9822		Relay, tracks base LED status (unsupervised, to be mounted only in base electrical box)	Mounts in base electrical box (requires 1-1/2" extension on 4" square or octagonal box)

* Refer to data sheet S4098-0019 for other compatible bases. Refer to Installation Instructions 574-707 and Application Manual 574-709 for additional information.

Specifications

General Operating Specifications

Communications and Sensor Supervisory Power		IDNet or MAPNET II communications, auto-selected, 1 address per base
Communications and Sounder Power Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator	Current	1 mA typical supplied from communications, no impact to alarm current
	LED Connections	Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Temperature Range		32° F to 100° F (0° C to 38° C)
Operating Temperature Range	With 4098-9733	32° F to 122° F (0° C to 50° C)
	With 4098-9714	15° F to 122° F (-9° C to 50° C)
Storage Temperature Range		0° F to 140° F (-18° C to 60° C)
Humidity Range		10 to 95% RH
Smoke Sensor Ambient Ratings	4098-9714, Photoelectric Sensor	Air velocity is 0-4000 ft/min (0-1220 m/min)
Housing Color		Frost White

Sounder Operation

Sounder Voltage		18 to 32 VDC from steady external source or from NAC
Alarm Current (Sounder On)		20 mA @ 24 VDC, 24 mA maximum @ 32 VDC
Sounder Output		88 dBA minimum @ 10 ft (3 m) per UL Standard 464, *Audible Signaling Appliances* and UL Standard 268, *Smoke Detectors for Fire Protective Signaling Systems*
Sounder Power Supervision (Selectable)	Supervised	Select for continuous 24 VDC power, loss of power is communicated to panel
	Unsupervised	Select when connected to NAC for sounder power, NAC provides supervision
NAC Powered Operation		When in alarm, will sound when NAC is in alarm, allowing synchronized pattern (Temporal or March Time, etc.) controlled by the NAC

4098-9822 Unsupervised Relay Option

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

LISTING SERVICE

LISTING No.	7272-0026:0218	Page 1 of 2

CATEGORY: 7272 -- SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models 4098-9714, -9774, -9714TSP, -9714TTP, -9754, -9754TSP, -9754TTP; GSA4098-9714, and -9754 analog photoelectric type smoke detectors.

Models 4098-9764, 4098-9764BA, 4098-9764BK, *4098-9768, *4098-9768BA, and *4098-9768BK Multi-criteria Smoke/Heat Detectors.

Models 4098-9754, -9779, -9754TSP, -9754TTP; GSA4098-9754; 4098-9764, 4098-9764BA, 4098-9764BK, *4098-9768, *4098-9768BA, and *4098-9768BK analog photoelectric type smoke detectors employ an integral supplemental heat sensor (135°F fixed temperature and 20°F rate of rise). This heat sensor is intended for use as a supplemental device to the smoke detector and is not intended for use in lieu of required heat detectors. *Models 4098-9768 and 4098-9768BA are identical except for model number and employ a switch which enables for photo only or photo/heat. *Model 4098-9768BK is identical to the Model 4098-9768 except for model number.

Refer to listee's printed data sheet for additional detailed product description and operational considerations.

RATING: N/A

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as photoelectric smoke detectors for use with listee's separately listed compatible fire alarm control units. *Models complies with the applicable requirements in UL 268, 7th Edition. Refer to listee's Installation Instruction Manual for details.

Units are intended for use with smoke detector bases Models 4098-9789, -9789TSP, -9789TTP, -9791, -9791TSP, -9775, -9776, -9777, -9791TTP, -9792, -9792TSP, 9792TTP, -9793, 9793TSP, -9793TTP; GSA4098-9792, and -9793 (CSFM Listing No. 7300-0026:0217); 4098--9794, -9794TSP, -9794TTP (CSFM Listing No. 7300-0026:0500).

Models 4098-9714, -9714TSP and -9714TTP are listed for use with Models 4098-9750, -9751, -9752 and -9753 duct detector units (CSFM Listing No. 3240-0026:0220) and Models

*Revision 7-6-22 VWW

Date Issued:	**July 01, 2022**	*Listing Expires*	**June 30, 2023**

Authorized By: **VICTOR WONG**, *Program Coordinator*

Fire Engineering Division

4098-9755, -9755TSP and -9755TTP duct detector units (CSFM Listing No. 3240-0026:0241). Model 4098-9714 with Model 4098-9751 is suitable for installations inside air ducts with air velocities between 0-2000 fpm.

*Models 4098-9768, 4098-9768BA, and 4098-9768BK are for use with listee's separately listed compatible fire alarm control units Models 4100 (CSFM Listing No. 7165-0026:0251), 4010 (CSFM Listing No. 7165-0026:0226), 4010ES (CSFM Listing No. 7165-0026:0369), 4007 (CSFM Listing No. 7165-0026:0378), and listee's separately listed bases Models 4098-9775, 4098-9776, 4098-9777, 4098-9780, 4098-9789, 4098-9791, 4098-9792 (CSFM Listing No. 7300-0026:0217), 4098-9772, 4098-9794 (CSFM Listing No. 7300-0026:0500), 4098-9771, 4098-9773 (CSFM Listing No. 7300-0026:0330).

NOTE: The photoelectric type detectors are generally more effective at detecting slow , smoldering fires which smolder for hours before bursting into flames. Sources of these fires may include cigarettes burning in couches or bedding. The ionization type detectors are generally more effective at detecting fast, flaming fires that consume combustible materials rapidly and spread quickly. Sources of these fires may include paper burning in a waste container or a grease fire in the kitchen.

*Revision 7-6-22 VWW

Date Issued: **July 01, 2022**   *Listing Expires*   **June 30, 2023**

Authorized By: *VICTOR WONG, Program Coordinator*

Fire Engineering Division

UL, ULC, CSFM Listed; FM Approved*

Features

24 VDC high intensity notification appliance common features:

- Xenon strobe with intensity selectable as 135, 177, or 185 candela; visible selection jumper is secured behind strobe housing
- Regulated circuit design ensures consistent flash output and provides controlled inrush current
- Control is compatible with Simplex SmartSync two-wire operation
- Operation is compatible with ADA requirements
- Rugged, high impact, flame retardant thermoplastic housings available in red or white with clear lens
- Models are available for wall or ceiling mount
- Strobe operation is UL listed to Standard 1971

Appliances with audible notification (horn):

- Low current electronic horn with harmonically rich sound output suitable for either steady or coded operation (Temporal or 60 BPM March Time pattern)
- Horn operation is UL listed to Standard 464

Strobes provide synchronized flash for use with:

- Simplex fire alarm control panels and NAC Extenders when selected to provide strobe synchronization or SmartSync two-wire control
- Separate strobe Synchronization Modules or SmartSync Control Modules (SCMs) that convert conventional NAC inputs to a Smartsync output

SmartSync two-wire operation provides:

- Horns controlled separately from strobes on the same two-wire circuit, activated as Temporal pattern, March Time pattern (at 60 BPM), or on continuously

Wall mount appliance features:

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

Optional adapters and wire guards:

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

Description

Convenient Selection and Installation

TrueAlert multi-candela high intensity appliances provide convenient installation to standard electrical boxes. They are both impact and vandal resistant and provide a convenient strobe intensity selection. Since each model can be selected for strobe intensity output, on-site model inventory is minimized and changes encountered during construction can be easily accommodated.

Wall Mount

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

Ceiling Mount

Strobe appliances install using standard single gang electrical boxes. Horn/strobe appliances install using standard 4" electrical boxes. Color choice is determined by model number.
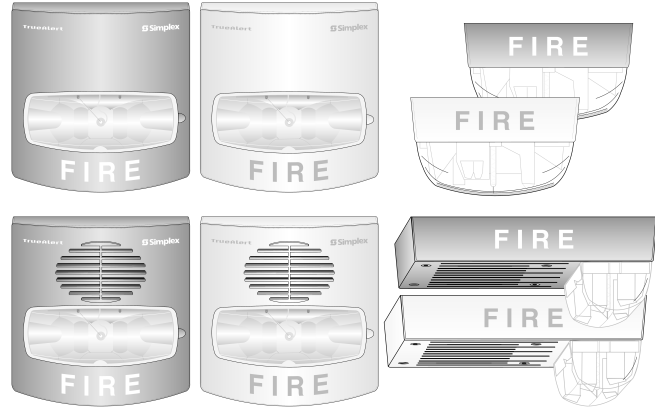
Figure 1: High Intensity Strobes and Horn/Strobes

Strobe Intensity Selection

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

Strobe Application 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).

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

SmartSync two-wire control is available from:

4006, 4007ES Hybrid, 4008, 4010, 4010ES, 4100ES, and 4100U Fire Alarm Control Panels (refer to individual product data sheets for more information)

4009 IDNet NAC Extenders (refer to data sheet *S4009-0002*)

SmartSync Control Module (SCM) Model 4905-9938 (refer to data sheet *S4905-0003*)

Product Selection

Table 1: Strobe (V/O) Product Selection

Model	Housing	Lettering	Mounting	Description
4906-9109	Red	White	Wall	Multi-candela strobe with intensity selectable as: 135, 177, or 185 candela; synchronized flash rate; SmartSync two-wire control compatible
4906-9111	White	Red		
4906-9110	Red	White	Ceiling	
4906-9112	White	Red		

Table 2: Horn/Strobe (A/V) Product Selection

Model	Housing	Lettering	Mounting	Description
4906-9139	Red	White	Wall	Horn and multi-candela strobe with intensity selectable as: 135, 177, or 185 candela; synchronized flash rate; operates with SmartSync two-wire control
4906-9141	White	Red		
4906-9140	Red	White	Ceiling	
4906-9142	White	Red		

Table 3: Wall Mount Common 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 w/strobe = 4-3/8" (111 mm)
4905-9940	White		
4905-9931	Red Adapter Plate for mounting to 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)
4905-9838	A/V only; 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

V/O Model	A/V Model	Description	Dimensions
4905-9992	4905-9994	Red Wall Mount Replacement 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)
4905-9993	4905-9995	White Wall Mount Replacement cover with red "FIRE" lettering	

Table 4: Wire Guards and Adapters

Model	Description	Dimensions
4905-9961*	A/V or V/O Wall Mount Red Wire Guard with Mounting Plate, for semi-flush or surface mounted boxes	6-1/16" H x 6-1/16" W x 3-1/8" D (154 mm x 154 mm x 79 mm)
4905-9926	V/O Ceiling Mount Red Wire Guard with Mounting Plate, for semi-flush or surface mounted boxes	6-1/8" x 4-3/8" x 2-7/8" deep (156 mm x 111 mm x 73 mm)
4905-9927*	A/V 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 4905-9927 guard to surface mounted electrical box	9" x 7" (229 mm x 178 mm)
4905-9910	Surface Mount Adapter Plate; zinc plated; required for mounting to handy box; not needed when using 4905-9926 guard	4-7/8" x 3-1/8" x 0.060" D (124 mm x 79 mm x 1.5)
4905-9915	White	Ceiling Mount A/V 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		

Note: * UL listed by Space Age Electronics Inc.

Installation Reference, Surface or Semi-Flush Mounting

Mounting is compatible with single gang, double gang, and 4" (102 mm) square boxes, 1-1/2" (38 mm) deep, by others

A/V housing is shown for reference; optional Sound Damper (shown) attenuates sound 5 to 6 dBA, field installed

Wiring access hole

Wiring terminals

Mounting Holes:
4" square (4)
Single gang (2)
Double gang (3)

Transparent housing and lens assembly

Intensity selection plug, accessible only from rear of housing; factory setting is 177 cd

185
177
135

Strobe intensity viewing slot

Removable cover, A/V Shown for Reference (tool is required to remove cover)

Figure 2: Installation reference, surface or semi-flush mounting

Note: Figure 2 shows optional 4905-9838 sound damper.

IMPORTANT! WALL MOUNT INSTALLATION HEIGHT REFERENCE

Bottom of lens is either even with, or slightly above bottom of compatible boxes

Electrical box outline

NFPA 72 requires that the entire lens be not less than 80" and not greater than 96" above the finished floor

80" (2.03 m) minimum
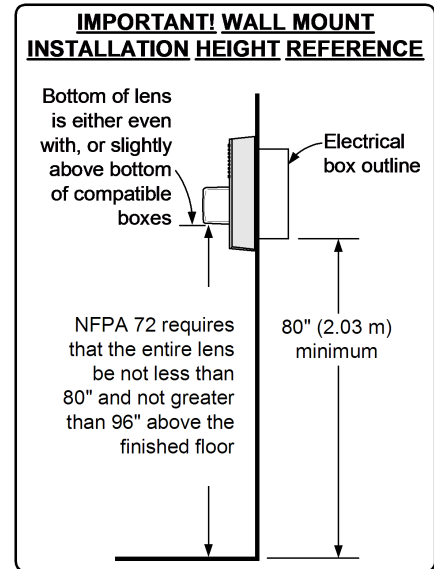
Figure 3: Wall mount installation height reference

Ceiling Mount High Candela Appliances Installation Reference

Ceiling reference, surface mounted box
4" (102 mm) square box, 1-1/2" (38 mm) minimum depth
Optional Adapter, recommended for surface mounted box
Ceiling reference, flush mounted box
Optional Adapter Plate, required for surface mounted electrical box
Four mounting clamps included, two each side
Optional Red Wire Guard
Wiring terminals are located behind the housing
Ceiling mount A/V
FIRE
A/V End View
A/V Reference

Single gang box (Wiremold V5744S) 2-1/4" (57 mm) deep, supplied by others
Handy box, 1-1/2" (38 mm) deep (RACO 650 or equal) or single gang box, 2-1/2" (64 mm) deep (RACO 519 or equal) supplied by others
Also can be attached to boxes mounted to drop ceiling T-bar with clips (ERICO No. 512 or equal)
Adapter Plate, required for surface mount with handy box unless using the wire guard
FIRE
V/O Reference
Optional wire guard with mounting plate
Ceiling mount strobe
Strobe intensity viewing slot
Intensity selection plug, accessible only from rear of lens housing; factory setting is 177 cd

Figure 4: Ceiling Mount High Candela Appliances Installation Reference

Note: Figure 4 shows:

· Optional 4905-9915/4905-9916 Adapter for A/V installation, recommended for surface mounted box

· Optional A/V 4905-9927 Red Wire Guard

· 4905-9910 Adapter Plate, required for surface mount V/O installation with handy box unless using the 4905-9926 wire guard

· Optional 4905-9926 wire guard with mounting plate for V/O installation

Wall Mount Installation Reference; Adapter Plate, Guard, and Adapter Skirt
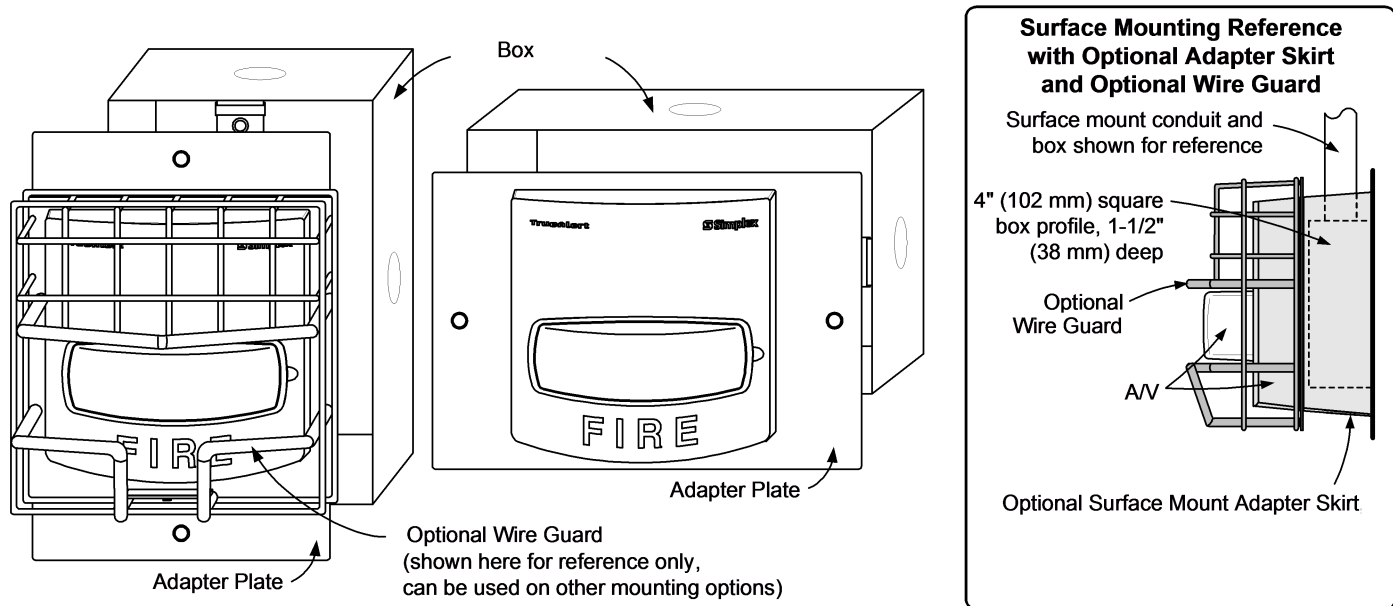
Figure 5: Wall Mount Installation Reference; Adapter Plate, Guard, and Adapter Skirt

Note: Figure 5 shows:

1. 4905-9931 Adapter Plate

2. 4905-9961 Optional Wire Guard

3. 2975-9145 back box

4. Optional Surface Mount Adapter Skirt, 1-1/2" deep: 4905-9937, Red; 4905-9940, White (conduit knockouts are provided on all four sides)

V/O shown for reference, A/V mounts the same.

Specifications

Refer to Instructions 579-859 for additional information.

Table 5: Specifications

Specification		Rating					
Rated Voltage Range	UL Listed Rating	Regulated 24 DC; see Note 1 below					
	ULC Listed Rating	20 VDC to 30 VDC per ULC S526-M878					
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)					
Screw Terminal Connections		18 AWG to 12 AWG (0.82 mm2 to 3.31 mm2); two wires per terminal for in/out wiring					
Dimensions (with lens)	A/V and V/O Wall Mount	5-1/8" H x 5" W x 2-3/4" D (130 mm x 127 mm x 70 mm)					
	V/O Ceiling Mount	4-3/4" L x 2-5/16" W x 2-5/8" D (121 mm x 75 mm x 67 mm)					
	A/V Ceiling Mount	4-3/4 L" x 6-7/8" W x 2-5/8" D (121 mm x 175 mm x 67 mm)					
Horn Output Characteristics		2400 to 3700 Hz sweep, modulated at 120 Hz rate					

A/V Horn Ratings, dBA @ 10 ft (3 m); at 24 VDC (see Note 2)	UL 464 Reverberant Chamber	**Steady Sound Output**		**Coded Sound Output (see Note 2 below)**	
		Wall Mount	**Ceiling Mount**	**Wall Mount**	**Ceiling Mount**
		86 dBA	87 dBA	82 dBA	83 dBA
	Anechoic Chamber	92 dBA	93 dBA	92 dBA	93 dBA
	Angular Dispersion	Per ULC S525; -3 dB at 45° off-axis for both wall and ceiling mount models			

Wall Mount			**Visible Only (V/O)**			**Audible/Visible (A/V)**		
	Maximum RMS Current Rating per Strobe Setting (see Note 3 below)		135 cd	177 cd	185 cd	135 cd	177 cd	185 cd
			330 mA	410 mA	430 mA	350 mA	440 mA	455 mA
	Reference RMS Currents at other voltages	18 VDC	279 mA	347 mA	364 mA	296 mA	372 mA	385 mA
		24 VDC	209 mA	260 mA	273 mA	222 mA	279 mA	289 mA
Ceiling Mount			**Visible Only (V/O)**			**Audible/Visible (A/V)**		
	Maximum RMS Current Rating per Strobe Setting (see Note 3 below)		135 cd	177 cd	185 cd	135 cd	177 cd	185 cd
			356 mA	431 mA	447 mA	389 mA	456 mA	463 mA
	Reference RMS Currents at other voltages	18 VDC	316 mA	383 mA	397 mA	346 mA	405 mA	412 mA
		24 VDC	237 mA	287 mA	298 mA	259 mA	304 mA	309 mA

Note:

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

2. Coded values are typical of the output measured with a Temporal pattern or a March Time coded pulse and with a sound level meter reading on a "fast" setting. Under the same test conditions, coded horn output "peak" sound level readings are typically 4 dBA higher. Anechoic horn output ratings are typically more representative of actual installed sound output.

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.)

LISTING SERVICE

LISTING No.	7125-0026:0333	Page 1 of 2

CATEGORY: 7125 -- FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models 4906-9109(Red Housing)/4906-9111(White Housing) strobe lights, 1 Hz, non-addressable, synchronizable, having selectable candela ratings of 135cd, 177cd, and 185cd. Intended for indoor use wall mounting only.

Models 4906-9110(Red Housing)/4906-9112(White Housing) strobe lights 1 Hz, non-addressable, synchronizable, having selectable candela ratings of 135cd, 177cd and 185cd intended for indoor use ceiling mounting only.

Models 4906-9139(Red Housing)/4906-9141(White Housing) audible signal appliance for the hearing impaired non-addressable, synchronizable, having selectable candela ratings of 135cd, 177cd, and 185cd. Intended for indoor use wall mounting only.

4906-9140(Red Housing)/4906-9142 (White Housing) audible signal appliance for the hearing impaired non-addressable, synchronizable, having selectable candela ratings of 135cd, 177cd and 185cd intended for indoor use ceiling mounting only.

Refer to the listee's data sheet for detailed product description and operational considerations.

RATING: Electrical: 24 VDC
Flash Rate: 1 Hz
Candela: 4906-9109, -9110, -9111, -9112, -9139, -9140, -9141, -9142:
135cd, 177cd, 185cd,

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction. Models 4906-9109/4906- 9111 and Models 4906-9139/4906-9141 are for wall mount only. Models 4906- 9110(Red Housing)/4906-9112 and Models 4906-9139(Red Housing)/4906-9141are for ceiling mount only.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as High Candela Strobes and Horn/Strobes models 4906, -9109, -9111, -9139, -9141, -9110, -9112, -9140, -9142 suitable for the hearing impaired when used with separately listed compatible fire alarm control units. Authority having jurisdiction should be consulted prior to installation. Refer to Listee's Installation Instruction Manual for details.

05-22-09 fm

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria.   Refer to listee's data sheet, installation instructions and/or other

Date Issued:	**July 01, 2022**	*Listing Expires*	**June 30, 2023**
Authorized By:	*VICTOR WONG, Program Coordinator*		
	Fire Engineering Division		

NOTE:

05-22-09 fm

Date Issued: **July 01, 2022**   *Listing Expires*   **June 30, 2023**

Authorized By: *VICTOR WONG, Program Coordinator*

Fire Engineering Division

S Simplex

True*Alarm* Analog Sensing

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

Addressable Duct Sensor Housings with TrueAlarm
Photoelectric Sensor; Available with Multiple Relay Control

Features

Compact air duct sensor housing with clear cover to monitor for the presence of smoke**

Includes factory installed TrueAlarm photoelectric smoke sensor and features:

- Individual sensor information processed by the host control panel to determine sensor status
- Digital transmission of analog sensor values via IDNet or MAPNET II, 2-wire communications
- Programmable sensitivity, consistent accuracy, environmental compensation, status testing, and monitoring of sensor dirt accumulation

Model 4098-9755:

- Basic duct sensor housing (no relay output) powered by IDNet/MAPNET II communications

Model 4098-9756:

- Duct sensor housing with supervised output for multiple remote relays; requires separate 24 VDC; includes one relay
- Relay output is under panel control
- At the panel, relay output can be activated manually or in response to a separate alarm or other input

General features:

- UL listed to Standard 268A
- Clear cover allows visual inspection
- Test ports provide functional smoke testing access with cover in place
- Mounts to rectangular ducts or round ducts; minimum size is 8" (203 mm) square or 18" (457 mm) diameter
- Magnetic test feature for alarm initiation at housing
- Optional weatherproof enclosure is available separately (refer to data sheet S4098-0032)

Diagnostic LEDs (on interface board):

- Red Alarm/Trouble LED for sensor status and communications polling display
- Yellow LED for open or shorted trouble indication of supervised relay control (4098-9756 only)

Sampling tubes (ordered separately):

- Available in multiple lengths to match duct size
- Installed and serviced with housing in place

Remote module options (ordered separately):

- Remote red status/alarm LED (2098-9808)
- Remote test station with LED (2098-9806)
- 4098-9843 remote relays (refer to page 2 for details)

* 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 3240-0026.241 for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.
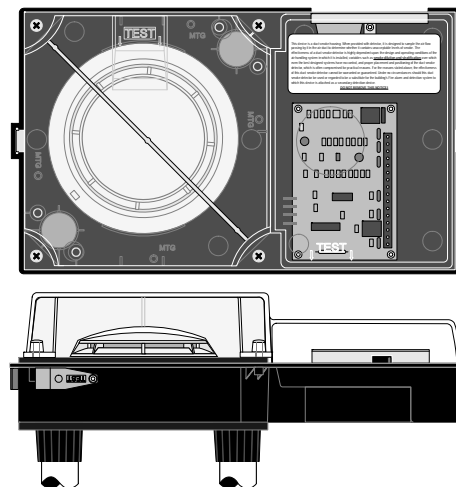
Duct Sensor Housing, Front and Bottom View
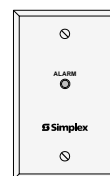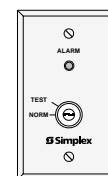
2098-9808   2098-9806

Remote Status/Alarm Indicator and Test Station

Introduction

Operation. Simplex® compact air duct smoke sensor housings provide TrueAlarm operation for the detection of smoke in air conditioning or ventilating ducts. Sampling tubes are installed into the duct allowing air to be directed to the smoke sensor mounted in the housing.

TrueAlarm Sensor Operation

Digital Communication of Analog Sensing. Analog information from the sensor is digitally communicated to the control panel where it is analyzed. Sensor input is stored and tracked as an average value with an alarm or abnormal condition being determined by comparing the sensor's present value against its average.

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

** Please note that smoke detection in air ducts is intended to provide notification of the presence of smoke *in the duct*. It is not intended to, and will not, replace smoke detection requirements for open areas or other non-duct applications.

TrueAlarm Sensor Operation *(Continued)*

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

Sensor Status LED. Each sensor housing's red status LED (located on the electrical interface board) pulses to indicate communications with the panel. If the control panel determines that a sensor is in alarm, or that it is dirty or has some other type of trouble, the details are annunciated at the control panel and that sensor housing's status 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 any alarmed sensors. (Remote Status/Alarm LEDs track the operation of the sensor housing LED.)

Photoelectric Sensing

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.

Photoelectric Sensing *(Continued)*

Typically duct sensor applications require less sensitive settings (such as 2.5% per foot obscuration) due to the ducts being a relative dirty environment. However, the standard seven levels of TrueAlarm sensor 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.

Fire Alarm Control Panel Features

- Individual smoke sensitivity selection
- Sensitivity monitoring that satisfies NFPA 72 sensitivity testing requirements
- Peak value logging allows accurate analysis for sensitivity selection
- Automatic, once per minute individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation
- Smoke sensitivity is displayed in percent per foot
- Ability to display and print detailed sensor information in plain English language
- Relays of model 4098-9756 are under panel control for ON, OFF, or override

Duct Sensor Selection Chart

Duct Smoke Sensor Housing with Photoelectric Sensor*

Model	Description	Compatibility
4098-9755	Basic Duct Sensor Housing; operating power is supplied by either IDNet or MAPNET II communications (no relay output)	4007ES, 4008, 4010, 4010ES, 4020, 4100, 4100ES, 4100E, and 4120. Also 2120 CDT if configured for MAPNET II, TrueAlarm operation
4098-9756	Duct Sensor Housing with supervised multiple relay output, requires separate 24 VDC fire alarm power and 4081-9008 end-of-line resistor harness; includes one 4098-9843 relay	Same as above except relay operation is not compatible with 2120 CDT; Relay output is for up to 15 total 4098-9843 Relays (additional relays are ordered separately)

Remote LED Indicator and Test Station, Select One if Required

Model	Description	Compatibility	Mounting
2098-9808	Red LED status indicator on single-gang stainless steel plate	4098-9755 4098-9756	Use single gang box, 3" H x 2" W x 2" D (76 mm x 51 mm x 51 mm)
2098-9806	Test Station with keyswitch and red LED status indicator, on single-gang stainless steel plate; (turning switch to "TEST" initiates alarm for system testing)		

Epoxy Encapsulated Remote Relay and End-of-Line Resistor

Model	Description	Compatibility	Location
4098-9843	Relay; single Form C (7 A @ 120 VAC); refer to pages 3 and 4 for additional relay information; one included with 4098-9756; wiring is 18 AWG (0.82 mm^2) color coded wire leads	4098-9756 only; connect up to 15	Locate relays within 3 ft (1 m) of device being controlled per NFPA 72
4081-9008	End-of-Line Resistor Harness; 10 kΩ, 1/2 W; (ref. 733-894); required to supervise remote relay coil connection	4098-9756	At last relay location

* Each duct housing includes an internally mounted model 4098-9714 TrueAlarm photoelectric sensor and an exhaust tube. A correctly sized sampling tube (ordered per application) is required, refer to chart below.

Sampling Tube Selection Chart, Ordered Separately Per Duct Width, Select One

Overall Duct Width	Tube Required	Suggested Cut Length
12" (305 mm)	**4098-9854**	1/2" (12.7 mm) longer than duct width
13" to 23" (330 mm to 584 mm)	**4098-9855**	1/2" (12.7 mm) longer than duct width
24" to 46" (610 mm to 1168 mm)	**4098-9856**	3 in" (76 mm) longer than duct width
46" to 71" (1168 mm to 1803 mm)	**4098-9857**	3 in" (76 mm) longer than duct width
71" to 95" (1803 mm to 2413 mm)	**4098-9858**	3 in" (76 mm) longer than duct width

Duct Sensor Housing Detail Reference

NOTE: Refer to Installation Instructions 574-776 for additional installation detail and maintenance information.

11-3/8" (289 mm)

Exhaust tube access hole

Conduit (by others)

6-3/4" (171 mm)

4098-9714 Smoke sensor, mounted in special interface base (supplied)

This device is a duct smoke housing. When provided with detector, it is designed to sample the air flow passing by it in the air duct to determine whether it contains unacceptable levels of smoke. The effectiveness of a duct smoke detector is highly dependent upon the design and operating conditions of the air handling system in which it is installed, variables such as smoke dilution and stratification over which even the best designed systems have no control, and proper placement and positioning of the duct smoke detector, which is often compromised for practical reasons. For the reasons stated above, the effectiveness of this duct smoke detector cannot be warranted or guaranteed. Under no circumstances should this duct smoke detector be used or regarded to be a substitute for the building's Fire alarm and detection system to which this device is attached as a secondary detection device. DO NOT REMOVE THIS NOTICE!

Metal plate with dual holes for 3/4" (19 mm) conduit, plug supplied for unused hole

Front View

Yellow LED, relay control trouble indicator (4098-9756 only)

Red sensor status LED

Side of duct

Sampling tube access hole

TEST

Wiring terminals

Stationary baffle (built-in)

Captive fastening screws (4)

Magnetic test area

NOTE: Orientation shown is for reference only, refer to General Location Notes and End View illustration below for alternate mounting reference.

Transparent cover

Gasketed sensor area

3-3/8" (86 mm)

Bottom view

TEST

Duct wall

13/16" (21 mm)

Exhaust tube (supplied)

Test ports (2) provided for measuring airflow and for aerosol injection

Sampling tube, ordered separately per duct width

Gaskets (supplied)

4098-9843 Remote Relay
(7 A @ 120 VAC, for use with 4098-9756 only)

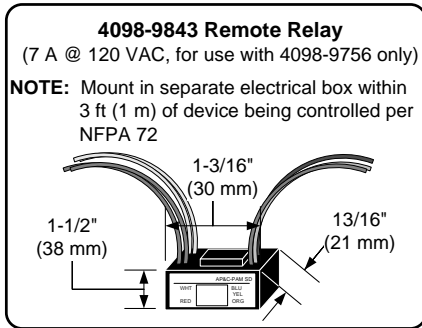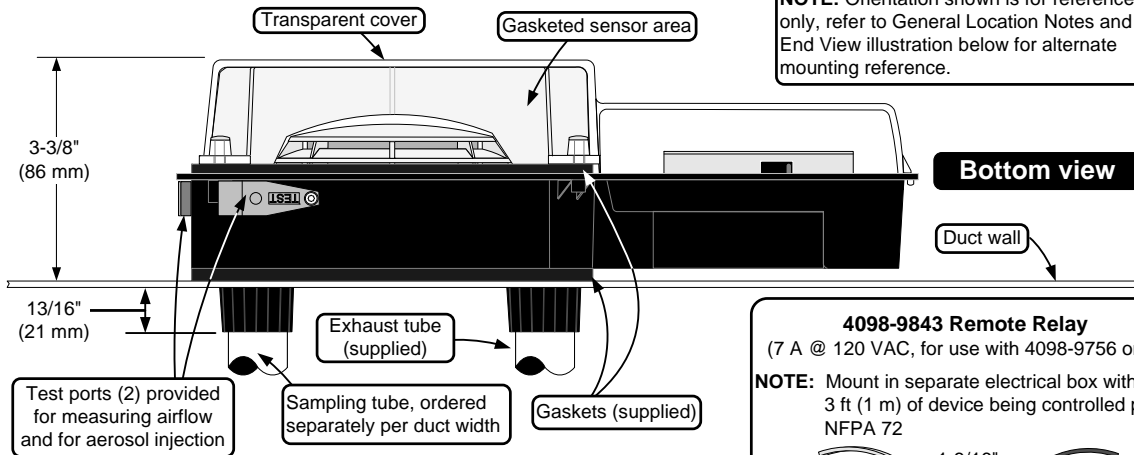**NOTE:** Mount in separate electrical box within 3 ft (1 m) of device being controlled per NFPA 72

1-3/16" (30 mm)

1-1/2" (38 mm)

13/16" (21 mm)

WHT   BLU/YEL/ORG

RED

Square duct reference outline

Alternate location (if appropriate)

18" Round duct outline (minimum diameter)

Sampling tube, keyed for proper hole alignment **with holes facing into airflow** (template is provided for proper tube installation). (Housing is shown as position 2 per note 2 below.)

Duct housing

End View with Ducts and Tubes

General Location Notes:

1. Testing performed under the auspices of the Fire Detection Institute (FDI) recommended when sampling tubes are not located vertically, that they be positioned horizontally in the upper half of the duct to account for possible stratification.

2. Three duct side mounting options are available as shown below. Mount housing at 90° to airflow for all orientations. Arrows indicate allowed airflow directions.

Exhaust tube

8" Square duct outline (minimum width)

①   ②   ③

DO NOT MOUNT ON BOTTOM OF DUCT

Duct Sensor Location Reference

Exhaust Damper
Sensor OK
Exhaust
Return Air
Do not locate sensor here
Return air damper
Fresh air
Supply Air
Do not locate sensor here
Filter bank
Sensor OK
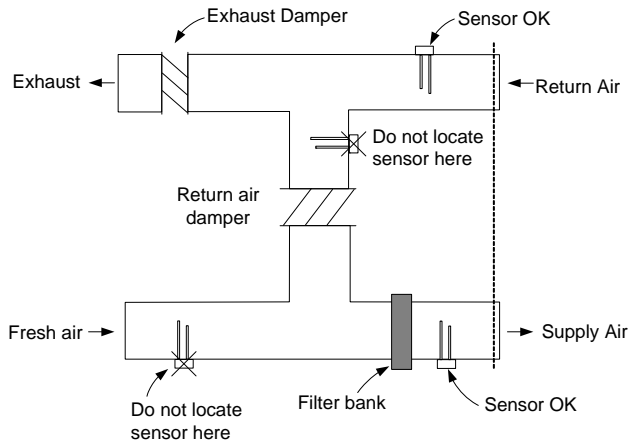
Additional Information. Refer to NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*; NFPA 72, the *National Fire Alarm and Signaling Code*; and the *NEMA Guide for Proper Use of Smoke Detectors in Duct Applications*, and Installation Instructions 574-776.

Duct Sensor Location Considerations:

1. Proper duct smoke detection location must ensure adequate airflow within the duct housing.
2. Duct air velocity rating is 300 to 4000 ft/min (91 to 1220 m/min). Pressure differential between intake and exhaust tubes is required to be between 0.015 to 1.55 inches of water (0.381 to 39.37 mm).
3. Ensure accessibility for test and service.
4. Proper Locations: downstream side of filters to detect fires in the filters; in return ducts, ahead of mixing areas; upstream of air humidifier and cooling coil.
5. Other locations and orientations may be required for proper duct smoke detection depending on duct access, system design, and duct airflow testing. Contact your local Simplex product supplier for assistance.

Locations to Avoid:

1. Where dampers closed for comfort control would interfere with airflow.
2. Next to outside air inlets (unless the intent is to monitor smoke entry from that area).
3. In return air damper branch ducts and mixing areas where airflow may be restricted.

Specifications

General Mechanical and Environmental

Air Velocity Range (linear ft/min)	300 to 4000 ft/min (91 to 1220 m/min)
Sensor Sensitivity Range	0.2% to 3.7% per foot of obscuration, selectable at host control panel
UL Listed Temperature Range	32° F to 100° F (0° C to 38° C)
Operating Temperature Range	32° F to 122° F (0° C to 50° C)
Storage Temperature Range	0° F to 140° F (-18° C to 60° C)
Humidity Range	10% to 95% RH, non-condensing
Wiring Connections	Terminal blocks, 18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Housing Color and Material	Black ABS base with clear polycarbonate cover
Sampling and Exhaust Tube Material	Black CPVC, custom extrusion; sampling tubes are pre-drilled

Remote Status/Alarm LED and Test Station with Remote Status/Alarm LED

Remote Alarm LED Current	1.2 mA, no impact to 24 VDC alarm current (2098-9808 or 2098-9806)
Test Station Keyswitch Current	3.3 mA, no impact to 24 VDC alarm current (2098-9806)
Remote Alarm LED and Test Station Distance	250 ft (76 m) maximum

Addressable Operation

Data Communications	IDNet or MAPNET II communications, auto-select, one address per housing; provides operating power to model 4098-9755

Model 4098-9756 with Supervised Multiple Relay Control, Requires Separate Fused 24 VDC from Fire Alarm Power Supply

Input Voltage	18-32 VDC (24 VDC nominal)
Standby Current	3 mA @ 24 VDC
Alarm Current	15 mA @ 24 VDC; add 15 mA for each 4098-9843 relay
Supervised Remote Relay Control Output	For use with 4098-9843 relay only, quantity of 15 maximum; distance of 500 ft (152 m) maximum; requires 4081-9008 (ref. 733-894) 10 kΩ, 1/2 W end-of-line resistor

4098-9843 Relay Output Ratings, Single Form C, use with Model 4098-9756 Only

Coil Current	15 mA @ 24 VDC, up to 15 maximum per relay control output
Relay Contacts	7 A at 0.35 PF @ 28 VDC & 120 VAC; 250 μA @ 5 VDC
Location Distance	500 ft (152 m) maximum to relay coils; locate relays within 3 ft (1 m) of device being controlled per NFPA 72

LISTING SERVICE

LISTING No.	3240-0026:0241	Page 1 of 1

CATEGORY:　　3240 -- DUCT SMOKE DETECTOR HOUSING/BASE

LISTEE:　　Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN:　　Models 4098-9755, *4098-9755TSP, *4098-9755TTP, 4098-9756, *4098-9756TSP, *4098-9756TTP, 4098-9685, 4098-9686, 4098-9687 and 4098-9688 photoelectric type air duct smoke detector units and Model 4098-9841 relay (for Model 4098-9688 only). Unit consists of a listed detector head, base, a sampling and an exhaust tube and an enclosure. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING:　　Air Velocity: 300 - 4000 feet/min

INSTALLATION:　　In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING:　　Listee's name, model number, electrical & air velocity rating, and UL label.

APPROVAL:　　Listed as duct smoke detector units for installation in HVAC systems when used with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE:

*Rev. 11-06-03

Date Issued:	**July 01, 2022**	*Listing Expires*	**June 30, 2023**
Authorized By:	**VICTOR WONG**, *Program Coordinator*		
	Fire Engineering Division		

Simplex

Weatherproof Notification Appliances (non-addressable) Wall Mount Visible Only (V/O) and Audible/Visible (A/V)

Features

Weatherproof 24 VDC notification appliances for extended temperature and extended humidity operation:

- NEMA 3R rated enclosure with ratings for indoor or outdoor applications.
- Rugged, high impact, flame retardant thermoplastic housings are available in red or white, with a clear lens.
- Red housings are for indoor or outdoor applications and provide UV light stable color.
- White housings are for indoor applications with limited UV light exposure.
- Mounting is to matching weatherproof boxes (required), ordered separately.
- Wiring terminals are accessible from the front of the housing providing easy access for installation, inspection, and testing.

Agency listings reference:

- UL listed to Standard 1638 for outdoor applications with strobe rated at 75 cd (WP75).
- UL listed to Standard 1971 for indoor applications with strobe intensity selectable as 15, 60, or 75 candela; indoor applications are compatible with ADA requirements (refer to important installation information on page 4).
- Separate models are ULC listed to Standard S526 (strobes) and S525 (horns) for outdoor applications with strobe intensity selectable as 5, 20, or 30 candela (available in red only).

Operation details:

- A visible intensity selection jumper is secured behind the strobe housing.
- Polarized input allows connection to compatible reverse polarity, supervised notification appliance circuit (NAC).
- Regulated circuit design ensures consistent flash output and provides controlled inrush current.
- A/V appliances have an efficient electronic horn.

Synchronized strobe compatibility:

- Simplex® fire alarm control panels and NAC Extenders when selected to provide strobe synchronization or SmartSync two-wire control.
- Separate strobe Synchronization Modules or SmartSync Control Modules (SCMs) that convert conventional NAC inputs to a SmartSync output.

SmartSync two-wire operation provides:

- Horns controlled separately from strobes on the same two-wire circuit, activated as Temporal pattern, March Time pattern (at 60 BPM), or on continuously.

Figure 1: Weatherproof A/V (top) and strobe (middle), side view of A/V on weatherproof mounting boxes (bottom)

Description

Weatherproof multi-candela TrueAlert appliances provide VO and A/V SmartSync operation for indoor and outdoor, extended temperature and extended humidity applications. The enclosures are impact and vandal resistant and provide a convenient strobe intensity selection. Because each model can be selected for intensity output, on-site model inventory is minimized and changes encountered during construction are easily accommodated.

Strobe intensity selection

During installation, use the selection plug at the back of the housing to determine the strobe intensity. Use the attached flag with black letters on a yellow background to see the selected intensity at the side of the strobe lens.

Strobe application reference

Correct selection of weatherproof notification is dependent on occupancy, location, local codes, and correct applications of: the National Fire Alarm and Signaling 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). Requirements may differ from indoor appliance applications, contact your local authority having jurisdiction (AHJ) to assist in determining requirements.

SmartSync two-wire control

SmartSync operation mode means that a two-wire circuit can activate both the horn and strobe on the same NAC, then the horn can 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

SmartSync two-wire control is available from:

- 4006, 4007ES Hybrid, 4008, 4010, 4010ES, 4100ES, and 4100U Fire Alarm Control Panels, refer to individual product data sheets for more information.
- 4009 IDNet NAC Extenders, *refer to data sheet S4009-0002*.
- SmartSync Control Module (SCM) Model 4905-9938, *refer to data sheet S4905-0003*.
- Additional SmartSync compatible notification appliances include separate horns and combination horn/strobe notification appliances.

Product selection

Table 1: UL Listed TrueAlert Weatherproof Multi-Candela Notification Appliances

Model	Type	Housing	FIRE lettering	Description	UL 1971	UL 1638 intensity rating
4906-9105	Strobe (VO)	Red	White	UL listed weatherproof appliance with multi-candela strobe; requires weatherproof box below	15 cd, 60 cd, or 75 cd	75 cd (setting WP75)
4906-9106		White	Red			
4906-9131	Horn/Strobe (A/V)	Red	White			
4906-9132		White	Red			

Table 2: ULC Listed TrueAlert Weatherproof Multi-Candela Notification Appliances

Model	Type	Housing	FIRE lettering	Description	ULC intensity ratings
4906-9113	Strobe (V/O)	Red	White	ULC listed weatherproof appliance with multi-candela strobe; requires weatherproof box below	5 cd, 20 cd, or 30 cd
4906-9143	Horn/Strobe (A/V)				

Table 3: Wall mount weatherproof boxes, required

SKU	Description		Dimensions
49WPBB-AVVOWR	Red	Surface mount weatherproof mounting boxes	5 1/2 in. H x 6 1/8 in. W x 1 5/8 in. D (140 mm x 156 mm x 41 mm)
49WPBB-AVVOWW	White	Surface mount weatherproof mounting boxes	5 1/2 in. H x 6 1/8 in. W x 1 5/8 in. D (140 mm x 156 mm x 41 mm)

Table 4: Aftermarket red bilingual (French/English) covers, for field installation

Model	Description	
4905-9832	Red strobe (V/O) cover	White "FEU/FIRE" lettering
4905-9833	Red horn/strobe (A/V) cover	

Table 5: Synchronization Module Reference, refer to data sheet *S4905-0003* for additional information

SKU	Description		Dimensions
4905-9914	Class B	Synchronized Flash Module; epoxy encapsulated with in/out 18 AWG (0.82 mm^2) wire leads, rated for 2 A NAC, requires 10 mA for power	1 3/8 in. x 2 7/16 in. x 13/16 in. (35 mm x 62 mm x 20 mm)
4905-9922	Class A		
4905-9938	SmartSync Control Module with Class B or Class A output; mounts in 4 in. (102 mm) square box		4 in. x 4 1/8 in. x 1 1/4 in. D (102 mm x 105 mm x 32 mm)

Specifications

Specifications	
Rated voltage range	Regulated 24 VDC; see Note 1
Flash rate	1 Hz; up to 24 synchronized strobes maximum for each NAC
Temperature range UL 1971 listed rating	32° F to 122° F (0° to 50° C); selectable 15 cd/30 cd/75 cd

Specifications		
	UL 1638 listed rating	-31°F to 150°F (-35° C to 66°C); 75 cd rating
	ULC S526 and S525 listed rating	-40°F to 150°F (-40° C to 66°C); 5 cd/20 cd /30 cd rating
Humidity range	UL 1971 listed rating	10% to 93%, at 100° F (38° C)
	UL 1638, ULC S526, and ULC S525	up to 98%, at 104 °F (40° C)
Wiring connections		Terminal blocks for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires for each terminal for in/out wiring

Table 6: Horn output; Models 4906-9131, 4906-9132, and 4906-9143; UL and ULC ratings as noted
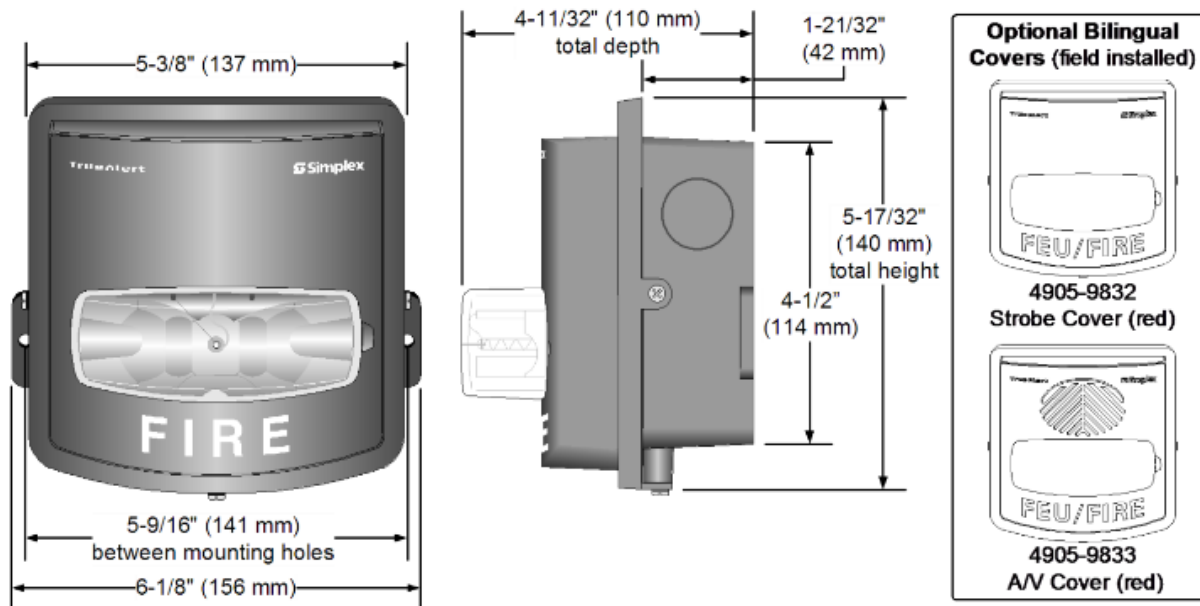
Output sound characteristics		2400 Hz to 3700 Hz sweep, modulated at 120 Hz rate					
Horn output ratings @ 10 ft (3 m) (see Note 2)	Voltage	16 VDC		24 VDC		33 VDC	
	Sound type (see Note 2)	Steady	Coded	Steady	Coded	Steady	Coded
	UL 464 reverberant chamber	80 dBA	76 dBA	83 dBA	79 dBA	86 dBA	81 dBA
	ULC S525 anechoic chamber	96 dBA	96 dBA	99 dBA	99 dBA	101 dBA	101 dBA

Table 7: Maximum RMS current ratings, see Note 3

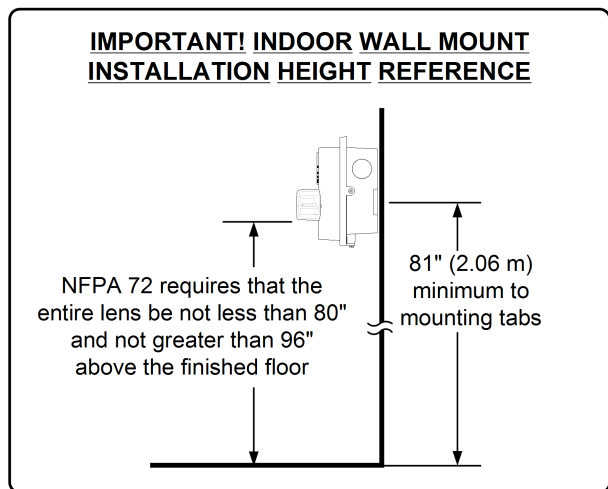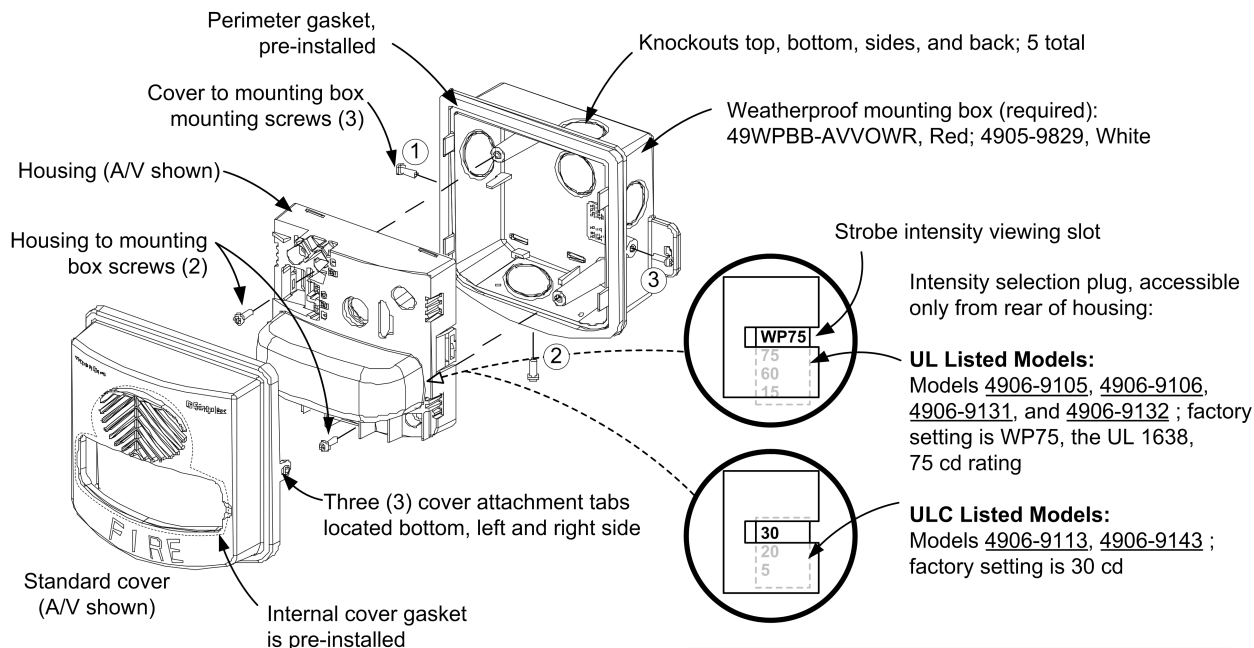| SKU	Intensity selection/temperature	UL 1971 ratings (32° F to 122° F)			UL 1638 ratings 75 cd (WP75)	
		15 cd	60 cd	75 cd	32° F to 150°F (0° C to 66°C)	-31° F to below 32°F (-35° C to 0° C)
VO Models 4906-9105 and 4906-9106		77 mA	192 mA	231 mA	189 mA	273 mA
A/V Models 4906-9131 and 4906-9132		91 mA	204 mA	249 mA	205 mA	277 mA
		ULC S526/S525 ratings according to intensity selection				
Model		5 cd		20 cd		30 cd
VO Model 4906-9113		115 mA		270 mA		295 mA
A/V Model 4906-9143		125 mA		275 mA		322 mA

Note:

1. "Regulated 24 VDC" refers to the voltage range of 16 VDC to 33 VDC in accordance with UL 1971 and UL 1638. This voltage range is the absolute operating range. Operation outside of this range may cause permanent damage to the strobe. Please note that 16 VDC is the lowest operating voltage that is allowed at the last appliance on the NAC under worst case conditions.

2. Coded values are typical of the output measured with a Temporal coded or a March Time coded pulse and with a sound level meter reading on a "fast" setting. Under the same test conditions, coded horn output "peak" sound level readings are typically 4 dBA higher. Anechoic horn output ratings are typically more representative of actual installed sound output.

3. Currents of A/Vs 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.

Dimension and optional cover reference

5-3/8" (137 mm)

5-9/16" (141 mm) between mounting holes

6-1/8" (156 mm)

4-11/32" (110 mm) total depth

1-21/32" (42 mm)

5-17/32" (140 mm) total height

4-1/2" (114 mm)

Optional Bilingual Covers (field installed)

FEU/FIRE
4905-9832 Strobe Cover (red)

FEU/FIRE
4905-9833 A/V Cover (red)

# Weatherproof appliance installation reference

Note:

For detailed installation information, refer to Installation Instructions *579-857* for UL listed products, and Installation Instructions *579-885* for ULC listed products.

Perimeter gasket, pre-installed

Cover to mounting box mounting screws (3)

Housing (A/V shown)

Housing to mounting box screws (2)

Standard cover (A/V shown)

Internal cover gasket is pre-installed

Three (3) cover attachment tabs located bottom, left and right side

Knockouts top, bottom, sides, and back; 5 total

Weatherproof mounting box (required): 49WPBB-AVVOWR, Red; 4905-9829, White

Strobe intensity viewing slot

WP75
75
60
15

30
20
5

Intensity selection plug, accessible only from rear of housing:

UL Listed Models:
Models 4906-9105, 4906-9106, 4906-9131, and 4906-9132 ; factory setting is WP75, the UL 1638, 75 cd rating

ULC Listed Models:
Models 4906-9113, 4906-9143 ; factory setting is 30 cd

IMPORTANT! INDOOR WALL MOUNT INSTALLATION HEIGHT REFERENCE

NFPA 72 requires that the entire lens be not less than 80" and not greater than 96" above the finished floor

81" (2.06 m) minimum to mounting tabs

Horizontal Dispersion

top
-6 dB left side
-6 dB right side
-3 dB @65°
-6 dB @85°
-3 dB @75°
on-axis (0°) rated output

Vertical Dispersion

-9 dB top
-6 dB @75°
-3 dB @60°
on-axis (0°) rated output
minimal loss
-1 dB bottom

A/V Sound Dispersion per ULC S525 (anechoic testing performed at 3 m (10 ft)

Polar Light Dispersion Reference, Each Intensity Selection; Percent of Rated Light Output at 77° F (25° C)					
Vertical Dispersion			**Horizontal Dispersion**		
Angle Below Axis	UL 1971 Minimum	Typical Output	Angle from Axis	UL 1971 Minimum	Typical Output
0	100%	322%	0	100%	320%
5	90%	217%	±5	90%	214%
10	90%	168%	±10	90%	177%
15	90%	179%	±15	90%	175%
20	90%	210%	±20	90%	174%
25	90%	184%	±25	90%	170%
30	90%	149%	±30	75%	169%
35	65%	172%	±35	75%	157%
40	46%	189%	±40	75%	151%
45	34%	203%	±45	75%	138%
50	27%	152%	±50	55%	130%
55	22%	166%	±55	45%	121%
60	18%	166%	±60	40%	117%
65	16%	164%	±65	35%	109%
70	15%	163%	±70	35%	105%
75	13%	159%	±75	30%	98%
80	12%	138%	±80	30%	90%
85	12%	113%	±85	25%	78%
90	12%	88%	±90	25%	67%
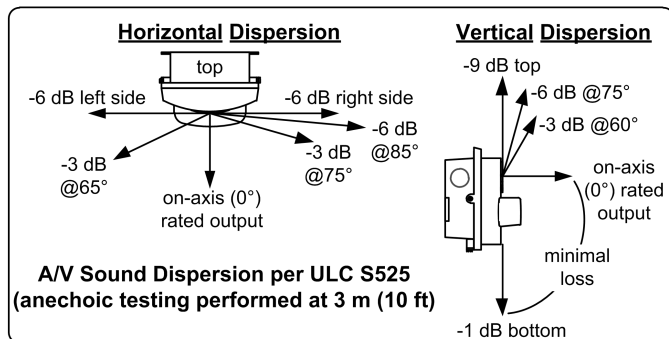
WP75 Intensity Selection Light Output Reference					
Angle	On-Axis	Vertical, Below Axis		Horizontal, Left/Right of Axis	
	0°	45°	90°	45°	90°
UL 1638 Minimum Candela Rating (over temperature range)	75	35	10	32	15
Typical Candela at 77° F (25° C)	215	103	24	94	39

LISTING No.   7125-0026:0331   Page 1 of 1

CATEGORY: 7125 -- FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: Simplex6 Technology Park Drive, Westford, MA 01886
Contact: Jim Goyette (978) 577-4074 Fax (978) 731-8881
Email: james.goyette@jci.com

DESIGN: Models 4906-9105, 4906-9106 Weatherproof Strobes; 4906-9131, 4906-9132 Weatherproof Horn/Strobes; and 4905-9828, 4905-9829 Weatherproof Backboxes. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: Electrical: 24 VDC
Candela: 15, 60, and 75 cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label

APPROVAL: Listed as strobe lights, horn/strobes suitable for the hearing impaired application when use with separately listed compatible fire alarm control units. For indoor use (15, 60 and 75 cd) and outdoor for Models with 4905-9828., 4905-9829 Weatherproof Backboxes (75cd). Refer to listee's Installation Instruction Manual for details.

03-23-09 bh

Date Issued: **July 01, 2022**   *Listing Expires*   **June 30, 2023**

Authorized By: **VICTOR WONG**, *Program Coordinator*

Fire Engineering Division