Building Systems
Submittal Package

Good Samaritan Hospital
401 15th Ave SE
Puyallup, WA 98372

Hospital Kitchen Phase 1
Fire Alarm System

Revision Date: 2/20/26

Johnson Controls Fire Protection
12781 Gateway Drive
Tukwila, WA 98108
Phone: 206-291-1400

www.JohnsonControls.com

Precision Electric Group
15301 NE 90th St
Redmond, WA 98052
Phone: 425-823-8600
Contact: Zach Burke

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Scheduling

Thank you for working with Johnson Controls on this project. We would like to take this opportunity to introduce you to the project team. **KEVIN BARREITH** is the Johnson Controls Project Manager assigned to this project to help with generic project information. **SCOTT HAYNES** is the project system specialist to assist with drawings/design questions. **YVONNE THOMPSON** is available for scheduling technicians.

Office: (206) 291-1400

In an effort to assist you in your installation we require you to arrange a Pre-Construction meeting with one of our Technicians. This meeting will allow your field foreman to ask any questions they may have in regard to the installation of your system. Based on the equipment quantities and current scope of work our Technician will need no less than **30** business days to complete all necessary programming and commissioning from the time the below checklist is complete prior to any AHJ testing. Please make sure this time is allowed for in the General Construction CPM schedule as it cannot be compressed. Change orders, change of scope, etc. may require additional time allotment to field personnel.

Installation Checklist

Johnson Controls is committed to providing the highest quality service available. As part of this service we want to ensure that the installation results in a trouble-free system. Please review the Checklist below and ensure each item is complete prior to our site visit.

A Technician will be dispatched only after the below checklist items have been completed. If these items are not completed prior to the visit by our technician, you may incur additional charges not covered by our quotation. Please feel free to contact our office if you have any questions.

- Fire Alarm Panel(s) have been mounted and all wiring (power, IDNET, signal, door-holders, etc.) pulled into panel(s).
- All wiring pulled into panel(s) or junction boxes have been permanently marked with wire markers and can easily be identified by a Johnson Controls
- System Power is supplied and on a dedicated circuit (Do Not Energize prior to Technician visit).
- All peripheral devices have been mounted (Smoke Detectors still covered).
- All end-of-line resistors have been installed.
- All alarm initiating circuits (smoke detectors, pull stations, etc.) have been checked for shorts, opens and grounds.
- All alarm notification circuits (speakers, horns, strobes, etc.) have been checked for shorts, opens and grounds.
- All remaining wiring (door-holders, FACP 24VDC, etc.) has been checked.
- Flows, Tampers, and Pressure Switches installed, properly wired and adjusted.
- All devices are properly protected against construction dust and contamination.
- Contact us immediately if there is no digital dialer or system monitoring provisions already in place. The dialer, phone lines and service will be required for system testing.
- There are no missing parts or equipment.

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Hardware Warranty

1) JOHNSON CONTROLS WARRANTY STATEMENT:
   a) JOHNSON CONTROLS WARRANTS TO THE PURCHASER OF NEW JOHNSON CONTROLS PRODUCT(S) THAT THE PRODUCTS SHALL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL.
2) WARRANTY PERIOD:
   a) THE WARRANTY PERIOD WILL TERMINATE IMMEDIATELY FOLLOWING THE EARLIEST OCCURRENCE OF EITHER OF THE FOLLOWING:
      i) 18 MONTHS HAVE ELAPSED FOLLOWING SHIPMENT OF ANY SYSTEM OR SUB-SYSTEM FROM JOHNSON CONTROLS TO THE CUSTOMER, OR
      ii) 12 MONTHS HAVE ELAPSED FOLLOWING THE FINAL CONNECTION OPERATION AND BENEFICIAL USE OF ALL OR ANY PART OF THE SYSTEM.
      iii) AS STATED IN THE SPECIFICATIONS AND/OR CONTRACT DRAWINGS
3) JOHNSON CONTROLS OBLIGATION UNDER THE TERMS OF THE WARRANTY:
   a) JOHNSON CONTROLS'S SOLE RESPONSIBILITY SHALL BE TO REPAIR, ADJUST OR REPLACE, AT ITS OPTION, ANY JOHNSON CONTROLS PRODUCT WHICH FAILS DURING THIS PERIOD PROVIDING PURCHASER HAS PROMPTLY REPORTED SUCH FAILURE TO JOHNSON CONTROLS IN WRITING. REPLACEMENT PARTS WILL BE WARRANTED ONLY FOR THE BALANCE OF THE EQUIPMENT WARRANTY. JOHNSON CONTROLS AGREES TO CONTINUE TO HONOR ALL OF THE UNEXPIRED EXPRESSED WARRANTIES SPECIFIED ABOVE ON DEFECTIVE EQUIPMENT AFTER TRANSFER OF THE EQUIPMENT TO PURCHASER'S CUSTOMER, PROVIDED PURCHASER'S CUSTOMER ASSUMES THE PURCHASER'S OBLIGATIONS SPECIFIED BELOW.
   b) EXCEPT FOR THE EXPRESSED WARRANTIES STATED HEREIN, JOHNSON CONTROLS DISCLAIMS ALL WARRANTIES ON PRODUCTS FURNISHED HEREUNDER, INCLUDING WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE STATED WARRANTIES ARE IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF THE JOHNSON CONTROLS ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE PRODUCTS. THE SELLER SHALL NOT BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE TO THE PRUCHASER OR USER OF THIS EQUIPMENT ARISING OUT OF THE FAILURE OF THE EQUIPMENT TO OPERATE IN EXCESS OF THE PURCHASE PRICE OF SAID EQUIPMENT.
   c) JOHNSON CONTROLS MAKES NO WARRANTY AND NO WARRANTY SHALL BE DEEMED TO EXIST, THAT PURCHASER HOLDS THE GOODS FREE OF THE CLAIM OF ANY THIRD PERSON BYWAY OF PATENT INFRINGEMENT OR THE LIKE.
4) PURCHASER'S OBLIGATIONS UNDER THE TERMS OF THE WARRANTY.
   a) THIS WARRANTY IS CONTINGENT UPON THE PROPER INSTALLATION AND USE OF THE PRODUCT(S). SUCH WARRANTY SHALL NOT APPLY IF THE PRODUCT FAILURE IS THE RESULT OF ACCIDENT, UNUSUAL PHYSICAL, ELECTRICAL OR ELECTROMECHANICAL STRESS, NEGLECT, MISUSE, USER PROGRAMMING ERRORS, FAILURE OF ELECTRICAL POWER, AIR CONDITIONING OR HUMIDITY CONTROL, CONSTRUCTION DUST, DAMAGING FOREIGN SUBSTANCES, TRANSPORTATION OR CAUSES OTHER THAN MANUFACTURING DEFECT. PURCHASER AGREES TO PROVIDE FULL AND FREE ACCESS TO AUTHORIZED JOHNSON CONTROLS EMPLOYEES.
   b) WARRANTY SERVICE HOURS
      i) SERVICES PROVIDED UNDER THIS WARRANTY WILL BE PERFORMED DURING THE HOURS OF 8:00A.M. TO 5:00P.M., MONDAY THROUGH FRIDAY, EXCLUDING LOCALLY OBSERVED JOHNSON CONTROLS HOLIDAYS. OFF HOURS RESPONSE IS AVAILABLE AS AN EXTRA COST SERVICE OPTION.
5) WARRANTY EXCLUSIONS:
   a) LABOR, TRAVEL, AND MILEAGE FOR:
      i) SERVICE OUTSIDE OF JOHNSON CONTROLS NORMAL BUSINESS HOURS.
      ii) PROGRAMMING AND/OR LABEL CHANGES.
      iii) FAILURE DUE TO EXTERNAL CAUSES (LIGHTNING SURGES, CONSTRUCTION DUST, ETC.) OTHER THAN MANUFACTURING DEFECT.
   b) ELECTRICAL WORK EXTERNAL TO THE EQUIPMENT SUPPLIED BY JOHNSON CONTROLS OR MAINTENANCE OF ACCESSORIES, ALTERATIONS, ATTACHMENTS OR OTHER DEVICES NOT FURNISHED BY JOHNSON CONTROLS.
   c) BATTERIES.
   d) COVERAGE OF EQUIPMENT CLASSED AS A WATER FLOW MONITORING/CONTROL DEVICES INSTALLED IN OR ON WATER PIPING.

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Manufacturer's Recommendation

1) CONTRACTOR IS EXPECTED TO PULL AND TERMINATE ALL CONDUCTORS AND INSTALL ALL DEVICES FOR A COMPLETE AND OPERATING SYSTEM.
2) WHERE FAN SHUTDOWN, ELEVATOR RECALL OR SPECIAL AUXILIARY FUNCTIONS ARE REQUIRED, CONTRACTOR IS TO VERIFY WIRING REQUIREMENTS WITH THE JOHNSON CONTROLS FACTORY TECHNICIAN ASSIGNED TO THE PROJECT (IN MANY CASES, SPECIAL WIRING WILL NOT BE SHOWN ON THE DRAWINGS).
3) WHERE POSSIBLE, THE CONTRACTOR IS TO USE COLOR CODE FOR ALL WIRING.
4) SMOKE DETECTORS ARE NOT TO BE MOUNTED WITHIN 3 FEET OF AIR OUTLETS.
5) CONTRACTOR MUST NOT INSTALL SMOKE DETECTOR HEADS IN BASES OR DUCT HOUSING UNTIL FINAL CHECKOUT TIME TO ENSURE THAT DIRT OR DUST DOES NOT CONTAMINATE THE UNITS. DIRTY DETECTORS ARE NOT COVERED BY WARRANTY.
6) DO NOT POWER-UP SYSTEM UNTIL JOHNSON CONTROLS FACTORY TECHNICIAN IS PRESENT.
7) A SEPARATE GROUND (ISOLATION FROM CONDUIT GROUND) MUST BE PULLED TO ALL CABINETS.
8) LOADS GREATER THAN 10 AMPS (FOR AUXILIARY FUNCTIONS) ARE NOT ALLOWED IN THE SAME CONDUIT AS FIRE ALARM.
9) CONTRACTOR IS TO ENSURE THAT ALL WIRING AND SHIELDS ARE FREE OF SHORTS, GROUNDS AND OPENS.
10) UNDERGROUND WIRING MUST MAINTAIN ONE MEGAOHM, 20F RESISTANCE TO GROUND.
11) ANY MANUFACTURER'S RECOMMENDATION IN CONFLICT WITH ENGINEERING DRAWINGS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION. CONTRACTOR SHALL ADVISE JOHNSON CONTROLS OF ANY CHANGES.
12) PROTECTIVE COVERS ON SMOKE DETECTORS ARE NOT TO BE REMOVED UNTIL OWNERS ACCEPTANCE OF THE SYSTEM. (PREVENTS CONTAMINATION OF SMOKE CHAMBER).
13) IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST THE STATE OR LOCAL FIRE MARSHAL TO BE ON SITE FOR FINAL ACCEPTANCE AND CHECK OUT IF REQUIRED.
14) IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVENTORY ALL EQUIPMENT RECEIVED FROM JOHNSON CONTROLS AGAINST THE CONTRACT DOCUMENTS AND REPORT ANY DISCREPANCIES WITHIN THIRTY (30) DAYS OR JOHNSON CONTROLS WILL ASSUME THE ORDER TO BE ACCURATE AND COMPLETE.
    a) *NOTE: IN THE EVENT OF DISCREPANCIES IN THE NUMBER OF DEVICES SUPPLIED, THE FOLLOWING JOHNSON CONTROLS POLICY WILL APPLY:
        i) TOO FEW DEVICES: IF THE DEVICE IS SHOWN ON THE CONTRACT DOCUMENTS AND HAS NOT BEEN ADDED AS A RESULT OF A POST BID ADDITION OR CHANGE ORDER, JOHNSON CONTROLS WILL SUPPLY THE DEVICE AT NO CHARGE TO THE CONTRACTOR OR END USER PER JOHNSON CONTROLS'S CONTRACT OBLIGATIONS.
        ii) TOO MANY DEVICES: IF THE DEVICE SHOWN IS EXTRA, DUE TO A POST BID ADDITION OR CHANGE ORDER; IT REMAINS THE PROPERTY OF THE CONTRACTOR OR END USER. IF THE DEVICE IS EXTRA DUE TO AN ERROR IN QUANTITIES SUPPLIED, THE DEVICE MUST BE RETURNED TO JOHNSON CONTROLS. NO CREDIT WILL BE ISSUED FOR THE RETURN OF EXTRA EQUIPMENT ABOVE THE QUANTITIES GIVEN IN THE CONTRACT DOCUMENTS.
15) OWNERS PRESENCE FOR FINAL DEMONSTRATION AND ACCEPTANCE.

Special Instructions - Johnson Controls

1) JOHNSON CONTROLS WILL PROVIDE WIRING INSTRUCTIONS FOR INSTALLATION OF JOHNSON CONTROLS EQUIPMENT.
2) JOHNSON CONTROLS WILL PROVIDE A FACTORY TRAINED TECHNICIAN TO ASSIST IN TRAINING:
   a) OPERATION OF THE CONTROL PANEL AND FUNCTIONS
   b) ALARM TEST OF ALL JOHNSON CONTROLS PERIPHERAL DEVICES (SMOKE DETECTOR, MANUAL PULL STATION, ETC.)
   c) SUPERVISE TEST OF ALL INITIATING, SIGNALING, AND CONTROL CIRCUITS.
3) JOHNSON CONTROLS WILL PROVIDE (1) INSTRUCTION AT FINAL TEST OF THE SYSTEM TO:
   a) OWNER REPRESENTATIVE
   b) FIRE INSPECTOR AND ELECTRICAL INSPECTOR
   c) ARCHITECT AND ENGINEER
4) UPON COMPLETION OF FINAL TEST, JOHNSON CONTROLS WILL PROVIDE:
   a) TEST REPORT
   b) CERTIFICATION (IF REQUIRED)
   c) ONE YEAR WARRANTY

Testing Procedure for Devices

GENERAL:

FOR ALL DEVICES (SUPPLIED BY JOHNSON CONTROLS) VISUALLY VERIFY PROPER LOCATION AND INSTALLATION.

SMOKE DETECTOR:

ACTIVATE THE DEVICE USING A SMOKE GENERATOR AND VERIFY ALARM CONDITION ON PANEL. RESET PANEL AND VERIFY RESET OF SMOKE DETECTOR AND PANEL. TEST FOR ALARM VERIFICATION IF APPROPRIATE.

HEAT DETECTOR:

FIXED TEMPERATURE REPLACEMENT ELEMENT - REMOVE ELEMENT ON HEAT DETECTOR TO INITIATE ALARM AND VERIFY ALARM CONDITION AT PANEL. REINSTALL ELEMENT, RESET SYSTEM, AND VERIFY.

NON-REPLACEABLE ELEMENT - NON-REPLACEABLE ELEMENT HEAT DETECTORS CAN ONLY BE TESTED FOR CONTINUITY.

RATE-OF-RISE DETECTORS - RATE OF RISE DETECTORS ARE TESTED WITH A HEATER OR BLOW DRYER UNTIL THEY INITIATE ALARM, THEN ALLOWED TO COOL. RESET PANEL AND VERIFY.

PULL STATIONS:

ACTIVATE STATION WITH THE T-HANDLE, VERIFY ALARM AND LABEL FOR LOCATION, RESET STATION, RESET PANEL.

DUCT DETECTOR:

(IF PROVIDED BY JOHNSON CONTROLS) WITH AIR HANDLING UNIT TURNED ON, OPEN ONE OF THE TEST PORT HOLES BY REMOVING THE RED COVER ON THE DUCT DETECTOR/SENSOR HOUSING. USING AN EXTENDED NOZZLE ON THE SMOKE DETECTOR AEROSOL TESTER SPRAY A FOUR TO EIGHT SECOND BURST OF AEROSOL THROUGH THE TEST PORT BUT NOT DIRECTLY AT THE DETECTOR/SENSOR HEAD. THE NOZZLE OF THE SMOKE DETECTOR AREOSOL TESTER SHOULD NOT EXTEND BEYOND THE INLET TUBE. AEROSOL IS SPRAYED INTO THE STREAM OF INCOMING AIR AND NOT DIRECTLY INTO DETECTOR/SENSOR. VERIFY ALARM, TEST ALL INDICATORS OR MANUAL TEST SWITCHES, RESET DETECTOR, RESET PANEL, TEST SAMPLE AND REFERENCE TUBE FOR POSITIVE AIR FLOW. (IF NOT PROVIDED BY JOHNSON CONTROLS) VERIFY THAT ZONE CIRCUIT IS PRESENT AT THE DEVICE.

AUDIBLES AND VISIBLES:

ACTIVATE ALARM AND CONFIRM THAT ALL INDICATING APPLIANCES, AUDIBLES AND VISIBLES, ARE OPERATING.

DOOR HOLDERS:

VERIFY THAT DOORS CLOSE ON ALARM.

VALVE SUPERVISORY SWITCHES (TAMPER):

(IF PROVIDED BY JOHNSON CONTROLS) ACTIVATE SWITCH BY MOVING VALVE OFF NORMAL, VERIFY STATUS CHANGE, RESET SWITCH, RESET PANEL. (IF NOT PROVIDED BY JOHNSON CONTROLS) VERIFY THAT ZONE CIRCUIT IS PRESENT AT THE SWITCH.

FLOW SWITCHES AND PRESSURE SWITCHES:

(IF PROVIDED BY JOHNSON CONTROLS) ACTIVATE SWITCH (WITH SPRINKLER CONTRACTOR PRESENT) BY A FLOW OF WATER, VERIFY STATUS CHANGE, RESET SWITCHES, RESET PANEL. (IF NOT PROVIDED BY JOHNSON CONTROLS) VERIFY THAT ZONE CIRCUIT IS PRESENT AND SUPERVISED AT THE SWITCH.

FAN/DAMPER CONTROL CIRCUITS:

VERIFY (WITH HVAC CONTRACTOR PRESENT) THAT THE CONTROL CIRCUIT IS OPERATING, AND THE DEVICES IS BEING CONTROLLED IN ACCORDANCE WITH THE SPECIFIED SEQUENCE OF OPERATION.

ELEVATOR CONTROL CIRCUITS:

VERIFY (WITH ELEVATOR CONTRACTOR PRESENT) THAT THE ELEVATOR IS BEING CONTROLLED IN ACCORDANCE WITH THE SPECIFIED SEQUENCE OF OPERATION.

TRAINING:

JOHNSON CONTROLS SHALL PROVIDE A ONE TRAINING SESSION TO THE CUSTOMER.

WARRANTY:

THE SYSTEM SHALL BE PROVIDED WITH A ONE YEAR HARDWARE WARRANTY.

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Equipment List & Data Sheets
Fire Alarm System

Quantity	Product ID	Product Description
5	4100-3109	IDNET MODULE 250 POINT
9	4100-5401	ES-PS POWER SUPPLY
12	4100-5450	CONVENTIONAL NAC MODULE
9	4100-5131	ES-PS FAN MODULE
1	4009-9201	NAC PANEL
2	2081-9286	7Ah BATTERY
24	4098-9792	SMOKE SENSOR BASE
21	4098-9714	SMOKE SENSOR
3	4098-9733	HEAT SENSOR
6	4098-9756	DUCT SMOKE DETECTOR
6	4098-9857	46" SAMPLE TUBES
6	2098-9806	REMOTE LED W/TEST
6	4090-9001	SUPERVISED MODULE
6	4090-9810	MOUNTING BRACKET
6	4090-9807	TRIM PLATE
6	4081-9004	EOL RESISTOR
28	4906-9154	MULTICANDELA SPEAKER/STROBE CEILING
5	EL4XSPST-FW	WP SPEAKER/STROBE
6	4902-9721	CEILING SPEAKER
2	4100-2504	GATEWAY COMMUNICATOR

Equipment List Subject to Change.

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Equipment List & Data Sheets
Fire Alarm System

Quantity	Product ID	Product Description
5	4090-9001	SUPERVISED MODULE
5	4090-9810	MOUNTING BRACKET
5	4090-9807	TRIM PLATE
5	4081-9004	EOL RESISTOR
2	4098-9714	SMOKE SENSOR
5	4098-9733	HEAT SENSOR
7	4098-9792	SENSOR BASE
6	4906-9154	MULTICANDELA SPEAKER/STROBE CEILING
2	4902-9721	SPEAKER CEILING MOUNT
1	EL4XSPST-FW	WP SPEAKER/STROBE WALL MOUNT

Equipment List Subject to Change.

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Multi-Application Peripherals

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

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

Features

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

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

For use with following Simplex control panels:

- Model Series 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:

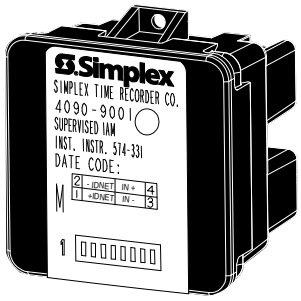
- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

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

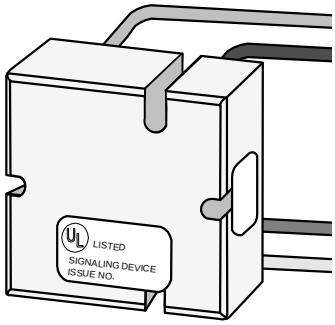
- Contact closure status can be tracked
- Momentary contact closure conditions can be selected at the panel to be latched or tracked (not available with the 2120 CDT)

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 4090-9151
	Field Wiring Diagrams	842-073 for IDNet operation; 841-804 for MAPNET II operation

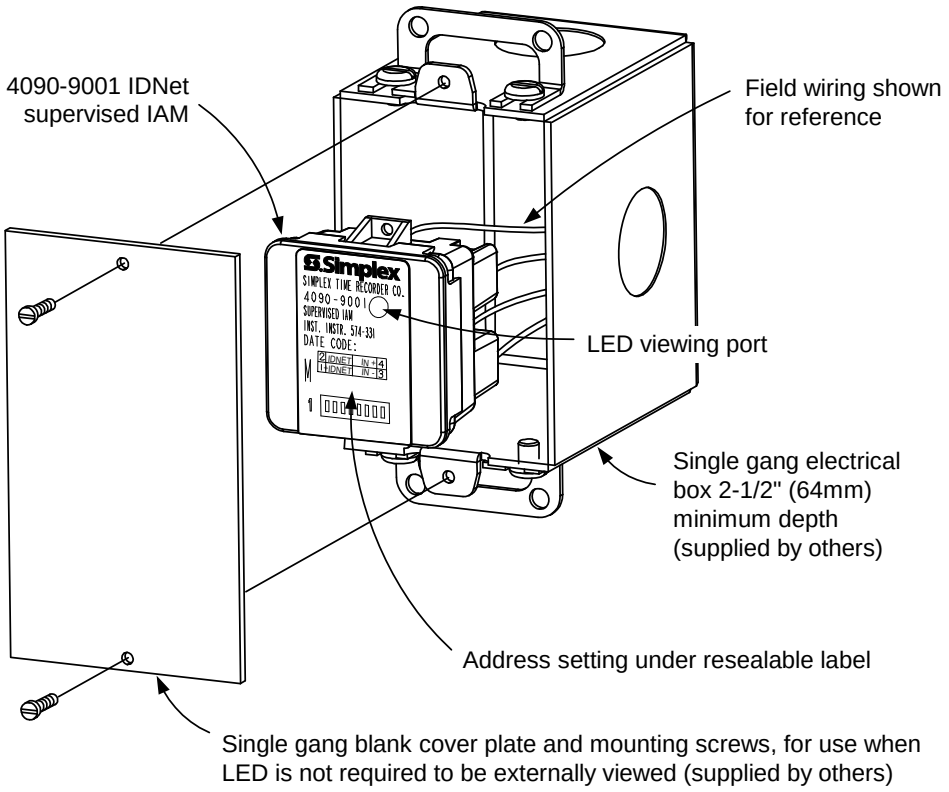
Wiring Distances

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

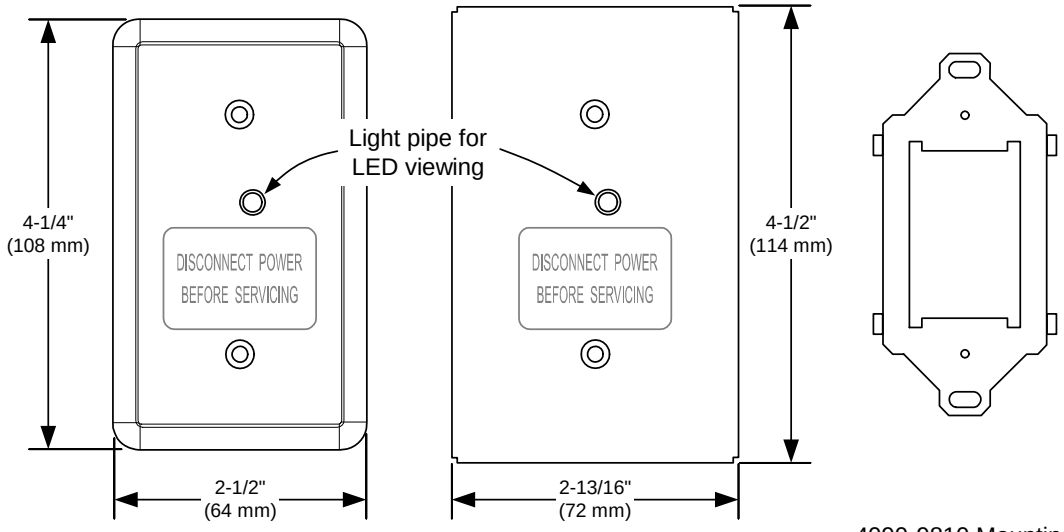
Mechanical

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

Mounting Information



Mounting Reference, Single Gang Blank Cover Plate



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

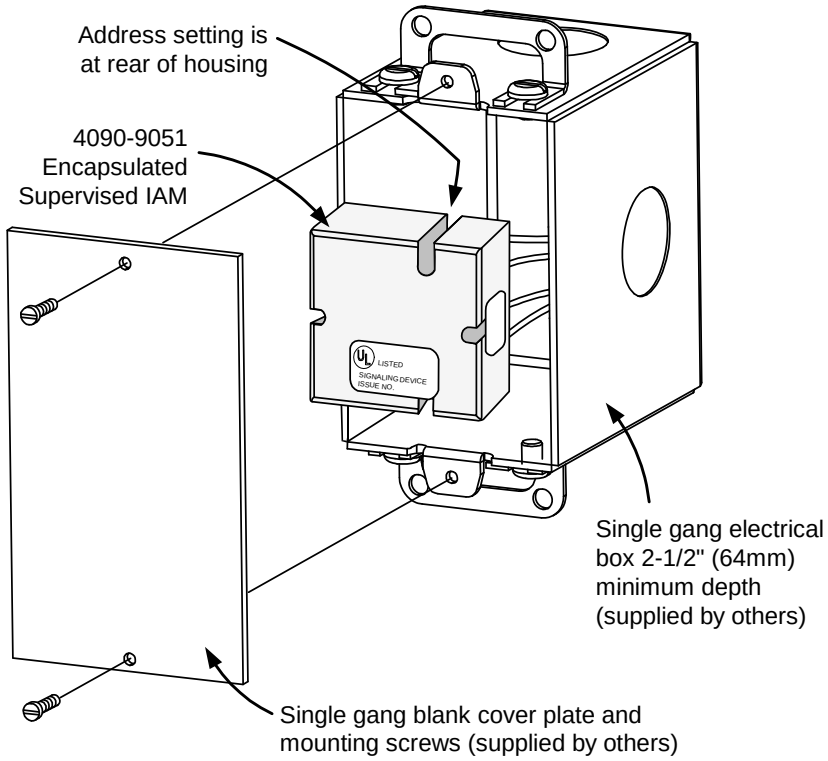
4090-9807, Trim plate for surface mounted box

4090-9810 Mounting bracket, ordered separately

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

Optional Trim Plates and Mounting Bracket for Visible LED

4090-9051 Mounting Information



Simplex®

True*Alarm* Analog Sensing

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

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

Features

TrueAlarm analog sensing provides:

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

For use with the following Simplex® products:

- 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, Universal Transponders, and 2120 TrueAlarm CDTs equipped for MAPNET II operation

Fire alarm control panel provides:

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

Photoelectric smoke sensors provide:

- Seven levels of sensitivity from 0.2% to 3.7% (refer to additional information on page 3)

Heat sensors provide:

- 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

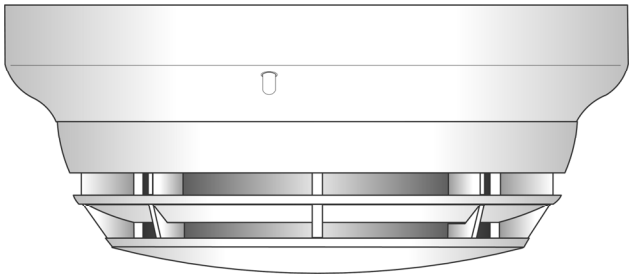
General features:

- Operation is for ceiling or wall mounting
- Listed to UL 268 and ULC-S529
- 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
- Different bases are available to support a supervised or unsupervised output relay, and/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)

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listings 7272-0026:218, 7271-0026:231, 7270-0026:216, and 7300-0026:217 for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable, contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.



4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

Description

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

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

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

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

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

True*Alarm* Sensor Bases and Accessories

Sensor Base Features

Base mounted address selection:

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

General features:

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

Sensor Bases

4098-9792, Standard Sensor Base

4098-9789, Sensor Base with wired connections for:

- 2098-9808 Remote LED alarm indicator **or** 4098-9822 relay (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 panel
- 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 @ 28 VDC; non-power limited rating of 3 A @ 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 @ 30 VDC, resistive; non-power limited rating of 0.5 A @ 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 @ 28 VDC; non-power limited rating of 1/2 A @ 120 VAC, (requires external 24 VDC coil power)

4098-9832, Adapter plate:

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

2098-9808, Remote red LED Alarm Indicator:

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

Description

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

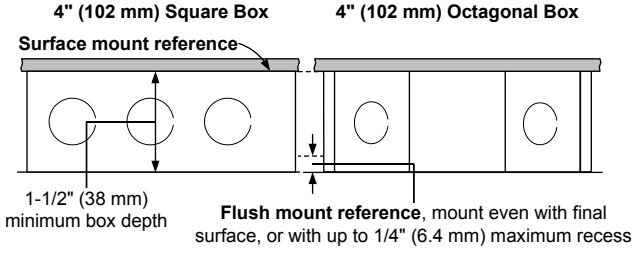
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing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

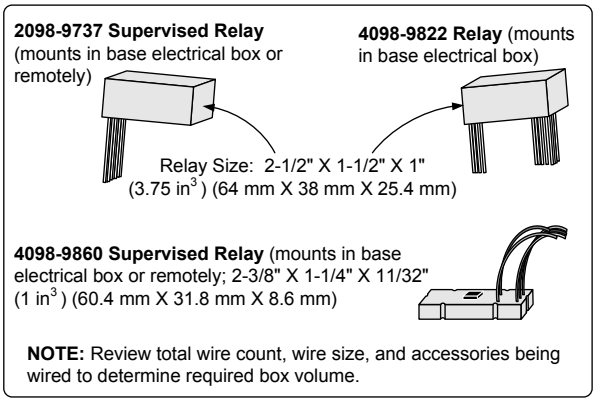
Mounting Reference

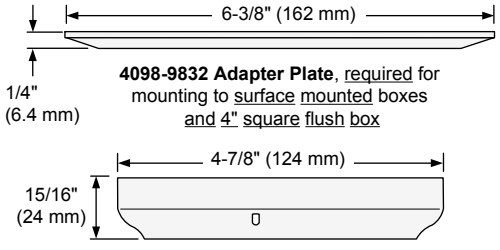
Electrical Box Requirements: (boxes are by others)

Without relay 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







TrueAlarm Bases
4098-9780, 4098-9789, 4098-9791, & 4098-9792

True*Alarm* Sensors

Features

Sealed against rear air flow entry

Interchangeable mounting

EMI/RFI shielded electronics

Heat sensors:

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

Fixed Temp. Setting	UL & ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F / 190° F* (57.2° C / 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.

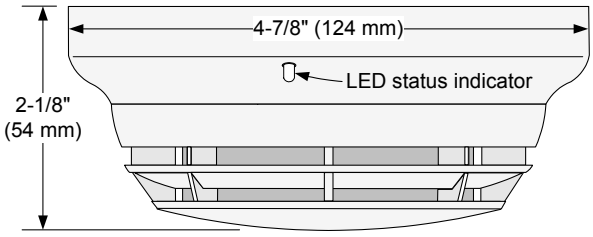
Smoke Sensors:

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

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed 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 response to smoke from any direction. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.



4098-9714 Photoelectric Sensor with Base

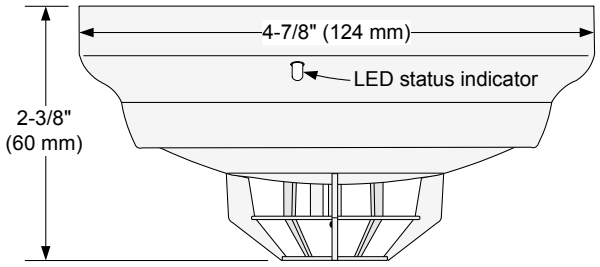
4098-9733 and 4098-9734 Heat Sensors

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.

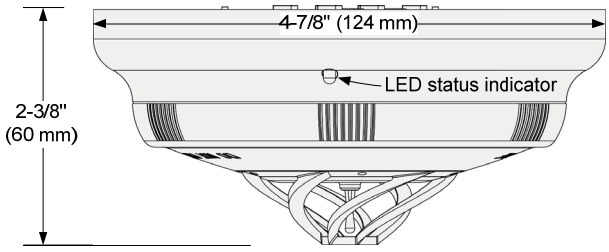
Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). The 4098-9734 sensor provides an additional 190° F (88° C) set point.

In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

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



4098-9733 Heat Sensor with Base



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, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide.*

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

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sensor Bases (for use with Sensors 4098-9714 and 4098-9733)

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

Model*	Color	Description	Compatibility	Mounting Requirements
4098-9792	White	Standard Sensor Base	No options	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" min. depth
4098-9776	Black			
4098-9789	White	Sensor Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	2098-9808 Remote Alarm Indicator **or** 4098-9822 Unsupervised Relay	4" octagonal or 4" square box **Note:** Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference. ** **NOTE:** 4098-9791 and 4098-9780 are NOT compatible with the 2120 CDT
4098-9789 IND	White			
4098-9775	Black			
4098-9791**	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**	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	

TrueAlarm Sensors

Model*	Model*	Description	Compatibility	Mounting Requirements
4098-9714	White	Photoelectric Smoke Sensor	Bases 4098-9775, 4098-9776, 4098-9792, 4098-9789, 4098-9791, and 4098-9780	Refer to base requirements
4098-9714 IND				
4098-9774	Black			
4098-9733	White	Heat Sensor		
4098-9734	White	High Temperature Heat Sensor		

TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4" octagonal or 4" square box, 1-1/2" minimum depth **Base Mounting** requires 4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9860	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9780 base	
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" 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" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, 4098-9789, 4098-9791, and 4098-9780	**Required** for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

* **Note:** Model numbers ending in IND are assembled in India.

Specifications

General Operating Specifications

Communications and Sensor Supervisory Power		IDNet or MAPNET II communications, auto-selected, 1 address per base
Communications Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator Current		1 mA typical, no impact to alarm current
Remote LED Alarm Indicator and Relay Connections		Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Operating Temperature Range		32° to 100° F (0° to 38° C)
Operating Temperature Range	with 4098-9733 Heat Sensor	32° to 122° F (0° to 50° C)
	with 4098-9714 Smoke Sensor	15° to 122° F (-9° to 50° C)
	With 4098-9734 Heat Sensor	32° to 150° F (0° 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		0-4000 ft/min (0-1220 m/min)
Housing Color		Frost White or Black
4098-9791 Base With Supervised Remote Relay 2098-9737 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		270 μA, from 24 VDC supply
Alarm Current with 2098-9737 Relay		28 mA, from 24 VDC supply
4098-9780 Base With Supervised Remote Relay 4098-9860 (see page 2 for contact ratings)		
Power		Supplied from communications
4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789. 4098-9791, and 4098-9780 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		Supplied from communications
Alarm Current		13 mA from separate 24 VDC supply

Simplex

True*Alert* Multi-Candela Notification Appliances

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

Visible Notification Appliances with Speaker and Multi-Candela Strobe; Non-Addressable

Features

Speaker/visible (S/V) notification appliances with multi-tapped speaker and multi-tapped high intensity xenon strobe with synchronized flash:

- Rugged, high impact, flame retardant thermoplastic housings are available for wall or ceiling mount
- Operation is compatible with ADA requirements (refer to important wall mount installation information on page 4)

Wall mount S/V features:

- Housings are available in red or white with clear lens with contrasting white or red "FIRE" lettering
- Covers are available separately to convert housing color

Ceiling mount S/V features:

- Housing is white with clear lens
- Red "FIRE" lettering is printed on two sides

Audible notification appliance (speaker):

- High quality voice and tone reproduction with taps for ¼, ½ , 1, or 2 W, at 25 or 70.7 VRMS
- Capacitor input for connection to supervised notification appliance circuits
- Speakers are wired separately from strobe wiring
- UL listed to Standard 1480 and ULC-S541*
- Compliant with NFPA 72, 520 Hz Low Frequency Signal Requirements for Sleeping Areas

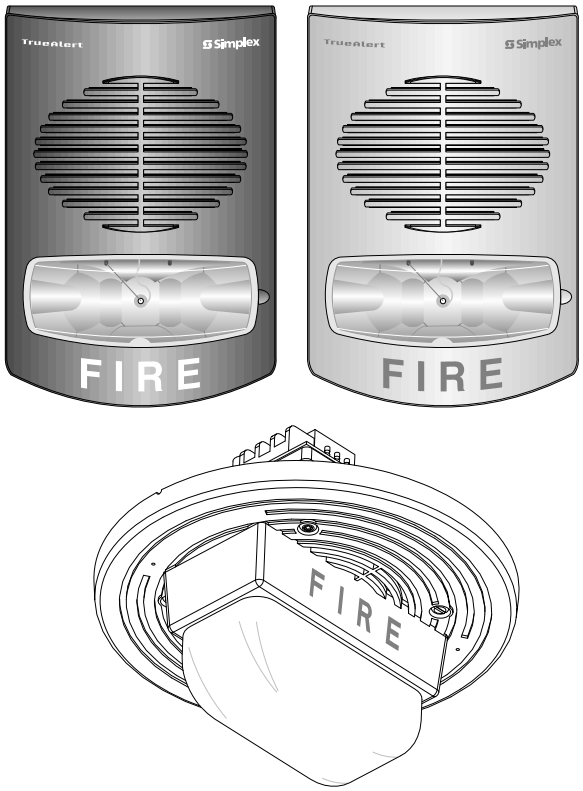
Visible notification appliance (strobe):

- 24 VDC xenon strobe; intensity is selectable as 15, 30, 75, or 110 candela with visible selection jumper secured behind strobe housing
- Strobes are activated from NACs selected to provide Simplex® strobe synchronization signals or from separate strobe Synchronization Modules that are available for Class B or Class A operation
- Regulated circuit design ensures consistent flash output and provides controlled inrush current
- UL listed to Standard 1971 and ULC-S526*

Options for wall mounted S/Vs:

- Red or white adapters to cover surface mounted electrical boxes
- Red adapter for mounting to Simplex 2975-9145 boxes
- Red wire guard

* See page 2 for additional listing details and wire guard listings. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7320-0026:247 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.



Wall and Ceiling Mount S/Vs

Description

Multi-Candela TrueAlert S/Vs with speaker and synchronized strobe provide convenient installation to standard electrical boxes with extensions. 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 S/V housings are a one-piece assembly (including lens) that mounts to a 4" square electrical box with extension (see details on page 4). The cover can be quickly removed (a tool is required) and covers are available separately for color conversion.

Ceiling mount S/Vs also install using 4" electrical boxes with an extension (see details on page 4).

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.

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 S/Vs are activated by NACs that provide the Simplex synchronization format. For additional information, refer to data sheet S4905-0003.

Strobe Application Selection

Proper selection of visible notification is dependent on occupancy, location, local codes, and proper 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).

Product Selection

Wall Mount Multi-Candela S/Vs

Model	Housing Color	"FIRE" Lettering	Listings	Description	Housing Dimensions with Lens
4906-9151	Red	White	UL & ULC	Multi-tapped Speaker with Multi-Candela Synchronized Strobe; strobe intensity selectable as: 15, 30, 75, or 110 candela	7 ¼" H x 5" W x 2 ⅝" D (184 mm x 127 mm x 67 mm)
4906-9153	White	Red			

Ceiling Mount Multi-Candela S/V

Model	Housing Color	"FIRE" Lettering	Listings	Description	Dimensions
4906-9154	White	Red	UL	Multi-tapped Speaker with Multi-Candela Synchronized Strobe; strobe intensity selectable as: 15, 30, 75, or 110 candela	Housing = 7 ½" (191 mm) diameter, ½" (13 mm) deep Strobe lens protrusion = 2 ⅝" (67 mm) above speaker housing Depth into box = 2 ¾" (70 mm)
4906-9157	White	Red	ULC		

Wall Mount S/V Adapters

Model	Description		Dimensions
4905-9946	Surface mount red adapter skirt	Required when mounting to surface mounted electrical box, 4" square, 1 ½" deep with 1 ½" deep extension	7 ¾" H x 5 ⅜" W x 3 $^{3}/_{16}$" D (197 mm x 137 mm x 81 mm) depth with S/V = 5 ⅞" (149 mm)
4905-9947	Surface mount white adapter skirt		
4905-9903	Adapter Plate, red, required to mount S/V on 2975-9145		8 $^{5}/_{16}$" H x 5 ¾" W x 0.060" Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Mounting box, red, for surface or flush mount, requires adapter plate 4905-9903 (this box may be available for retrofit applications)		7 ⅞" H x 5 ⅛" W x 2 ¾" D (200 mm x 130 mm x 70 mm)

Wall Mount S/V Replacement Covers

Model	Description	Dimensions
4905-9996	Red S/V cover with white "FIRE" lettering	7 ¼" H x 5" W x 1 ⅜" D (184 mm x 127 mm x 35 mm)
4905-9997	White S/V cover with red "FIRE" lettering	

Synchronized Flash Control Modules

Model	Description		Dimensions
4905-9914*	Synchronized Flash Module, Class B operation	Epoxy encapsulated with in/out 18 AWG (0.82 mm^2) wire leads, rated for 2 A NAC, requires 5 mA for power	1 ⅜" W x 2 $^{7}/_{16}$" L x $^{13}/_{16}$" H (35 mm x 62 mm x 20 mm)
4905-9922*	Synchronized Flash Module, Class A operation		

Wall Mount S/V Wire Guard

Model	Description	Dimensions
4905-9998	Wire guard with mounting plate, red, compatible with surface and semi-flush boxes (UL listed by Space Age Electronics Inc.)	8 ⅜" H x 6 $^{5}/_{16}$" W x 3 ¼" D (213 mm x 154 mm x 79 mm)

Ceiling Mount Tile Bridge

Model	Description	Dimensions
2905-9946	Tile Bridge	See diagram on page 4

* Refer to data sheet S4905-0003 for additional flash control module information

S/V Specifications

Common Specifications	Environmental	32° to 122° F (0° to 50° C); 10% to 93%, non-condensing at 100° F (38° C)
	Connections	Terminal blocks for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires per terminal for in/out wiring

Speaker Specifications

Input Voltage		25 or 70.7 VRMS, see Note 1 below
Power Taps		¼, ½, 1, and 2 W
Frequency Response	Fire Alarm	400 to 4000 Hz
	General Signaling	125 to 12 kHz

Speaker Output Ratings @ 10 ft (3 m) (see Note 1 below)		Wattage Tap	**¼ W**	**½ W**	**1 W**	**2 W**
	UL Listed Models, Reverberant Chamber Test, per UL 1480		76 dBA	79 dBA	82 dBA	85 dBA
	Wall Mount Models **4906-9151** and **4906-9153**, Anechoic Chamber Test, per ULC-S541		77 dBA	80 dBA	83 dBA	86 dBA*
	Ceiling Mount Model **4906-9157**, per ULC-S541	25 VRMS Input	81.6 dBA	84.3 dBA	87.1 dBA*	89.7 dBA*
		70.7 VRMS Input	80.9 dBA	84.1 dBA	87.3 dBA*	90.2 dBA*

* **NOTE:** Select taps as indicated to satisfy the ULC fire alarm applications requirement of 85 dBA minimum

	Attenuation	**Angle**	**Attenuation**	**Angle**
Polar Dispersion Reference (per ULC-S541 Anechoic Chamber Testing)	-3 dB	+/- 30° off-axis	-6 dB	+/- 55° off-axis

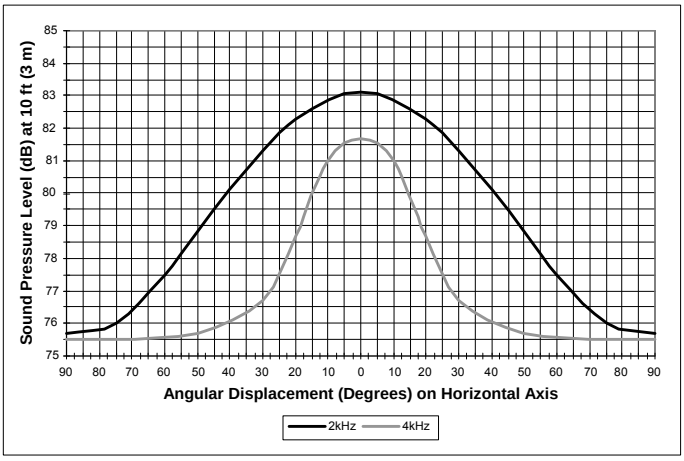
Strobe Specifications

Rated Voltage Range			Regulated 24 VDC; 16 VDC to 33 VDC, see Note 2 below			
Flash Rate and Synchronized NAC Loading			1 Hz; with up to 35 synchronized strobes maximum per NAC			
Wall Mount	Housing Dimensions (with lens)		7 ¼" H x 5" W x 2 ⅝" D (184 mm x 127 mm x 67 mm)			
	Maximum RMS Current Rating per Strobe Setting		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			60 mA	**94 mA**	**186 mA**	**252 mA**
	Reference RMS Currents at other voltages	18 VDC	53 mA	84 mA	165 mA	224 mA
		24 VDC	40 mA	63 mA	124 mA	168 mA
Ceiling Mount	Housing Dimensions		Speaker housing = 7 ½" (191 mm) diameter, ½" deep (13 mm); lens protrusion above speaker housing = 2 ⅝" (67 mm); depth into box = 2 ¾" (70 mm)			
	Maximum RMS Current Rating per Strobe Setting		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			75 mA	**125 mA**	**233 mA**	**316 mA**
	Reference RMS Currents at other voltages	18 VDC	67 mA	111 mA	207 mA	281 mA
		24 VDC	50 mA	83 mA	155 mA	211 mA

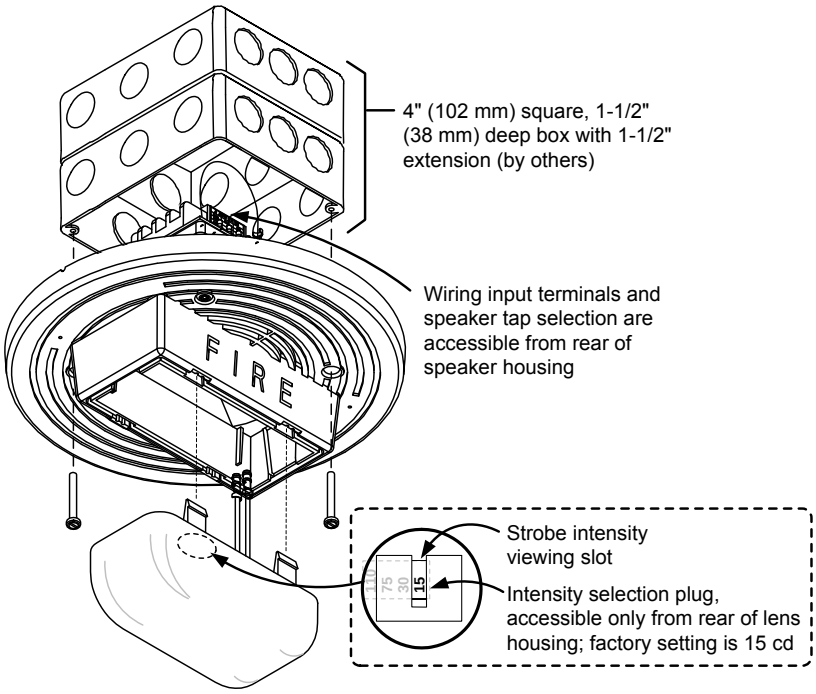
NOTES:

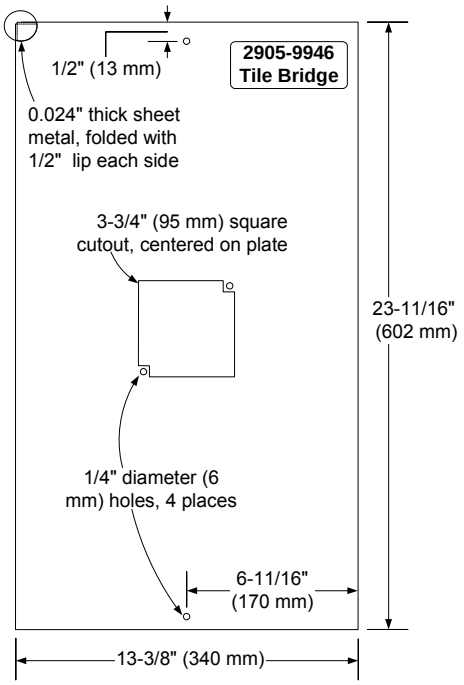
1. Speakers are for connection to conventional fire alarm audio circuits. Anechoic speaker output ratings are typically more representative of actual installed sound output.
2. The maximum RMS strobe current listed is the device nameplate rating. Strobe designs are constant wattage and the maximum RMS 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.)

Speaker Directional Characteristics Reference

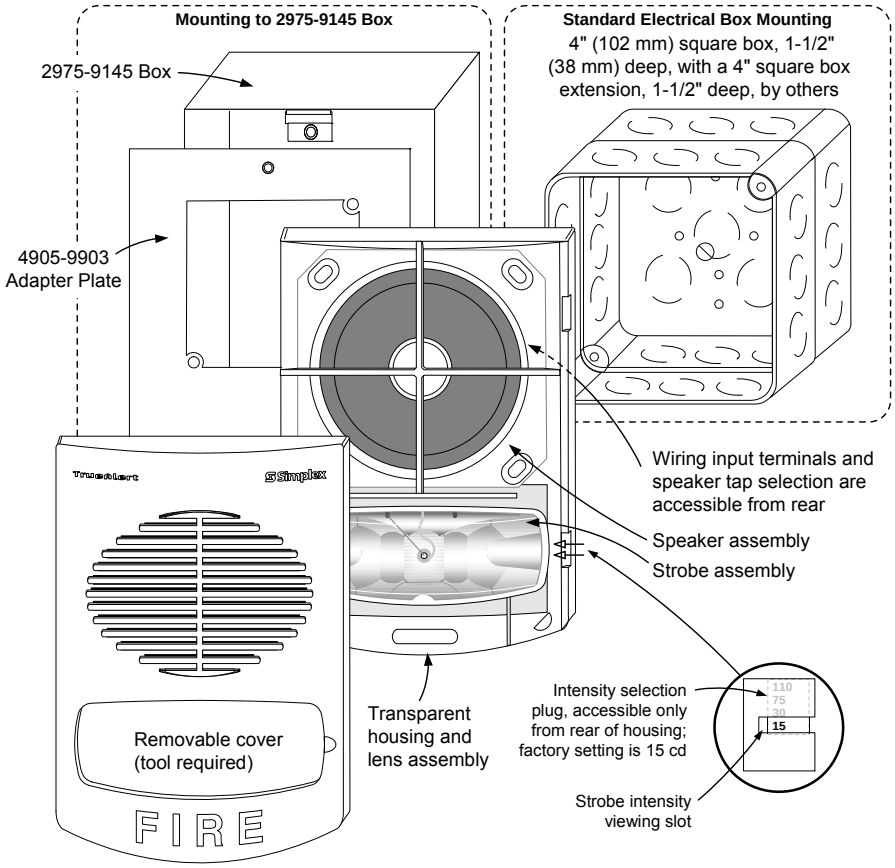


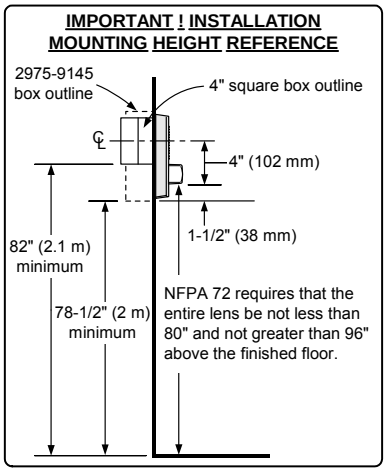
Ceiling Mount S/V Installation Reference and Tile Bridge Dimensions

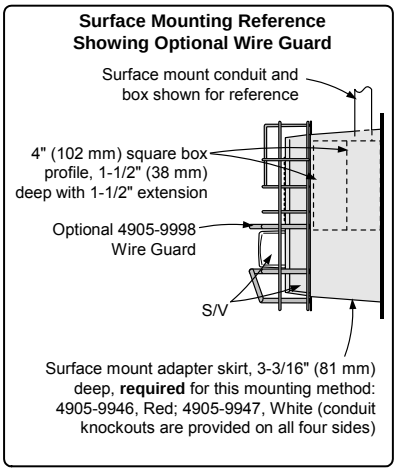




Wall Mount Installation Reference







Simplex®

Multi-Application Peripherals

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

Audible Notification Appliances
Speakers, 25 or 70.7 VRMS, Wall or Ceiling Mount

Features

Fire alarm speakers with models for ceiling or wall mount:

- Four inch cone (102 mm) provides high quality tone and voice reproduction
- Multi-tapped design provides output power of ¼, ½, 1, or 2 W with either 25 or 70.7 VRMS input
- In/out wiring terminals for 18 AWG to 12 AWG
- Mounts to 4" square outlet box, 1 ½" deep with 1 ½" deep box extension
- Capacitor input for connection to supervised notification appliance circuits
- Rugged, high impact, flame retardant thermoplastic housings
- UL listed to Standard 1480
- ULC listed to Standard S541, refer to page 4 for required minimum wattage tap per housing type
- Compliant with NFPA 72, 520 Hz Low Frequency Signal Requirements for Sleeping Areas

Rectangular housing models feature:

- Appearance that complements TrueAlert strobes and speaker/strobes
- Red or white housings with "FIRE" lettering for surface or semi-flush wall mount
- Optional matching adapter skirts for covering surface mounted electrical boxes*
- Optional red wire guard

Round housing models feature:

- Off-white color (no lettering) for flush mount on ceiling or wall
- Compatible with optional tile bridge 2905-9946

Introduction

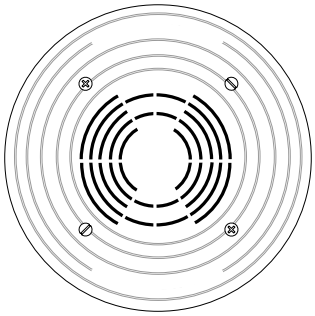
Simplex® 4902 Series speakers provide high quality sound for emergency fire alarm use as well as for background music. The moisture-repellent speaker is designed for smooth frequency response with minimal distortion.

The multi-tapped speaker transformer accommodates either 25 or 70.7 VRMS and provides an output of from ¼ to 2 W to provide flexibility for satisfying the requirements of the installed conditions.

Rectangular housing models are for surface or semi-flush wall mount applications. Round housing models are typically for ceiling applications but can be wall mounted if desired. The rectangular housing speakers are designed to compliment the TrueAlert family of strobes and speaker/strobes, providing conventional, non-addressable speaker operation.

* Refer to page 2 for guard and adapter skirt listing. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7320-0026:242 for allowable values and/or conditions concerning material presented in this document. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Rectangular Wall Mount Speakers are Available as Red with White "Fire" Lettering and White with Red "Fire" Lettering



Round Speakers are Available in Off-White (no lettering)

Specifications

Dimensions, Rectangular Wall Mount Housings		
Housing Dimensions		5 ⅛" H x 5" W x 1 ½" D (130 mm x 127 mm x 38 mm)
Depth into Box		2 ¾" (70 mm)
Dimensions, Round Housings		
Housing Dimensions		7 ½" Diameter, ½" D (191 mm x 13 mm)
Depth into Box		2 ¾" (70 mm)
General Specifications		
Input Voltage		25 or 70.7 VRMS
Power Taps		¼, ½, 1, and 2 W
Input Terminal Ratings		18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Frequency Response	Fire Alarm	400 to 4000 Hz
	General Signaling	125 to 12 kHz
Sound Output		See information on page 4
Temperature Range		32° to 100° F (0° to 38° C)
Humidity Range		10% to 95% RH from 32° to 122° F (0° to 50° C)

Product Selection

Speakers

Model*	Description		Dimensions
4902-9716 (CA)	Rectangular housing, wall mount speaker	Red with white “FIRE” lettering	5 ⅛” H x 5” W x 1 ½” D (130 mm x 127 mm x 38 mm)
4902-9717 (CA)		White with red “FIRE” lettering	
4902-9721 (CA)	Round housing speaker, ceiling or wall mount	Off-white (no lettering)	7 ½” Diameter x ½” D (191 mm x 13 mm)

* ULC listed model are designated with a CA suffix (4902-9716CA). Refer to Installation Instructions 574-765 for non-suffix model numbers and to Installation Instructions 579-324 for CA suffix model numbers.

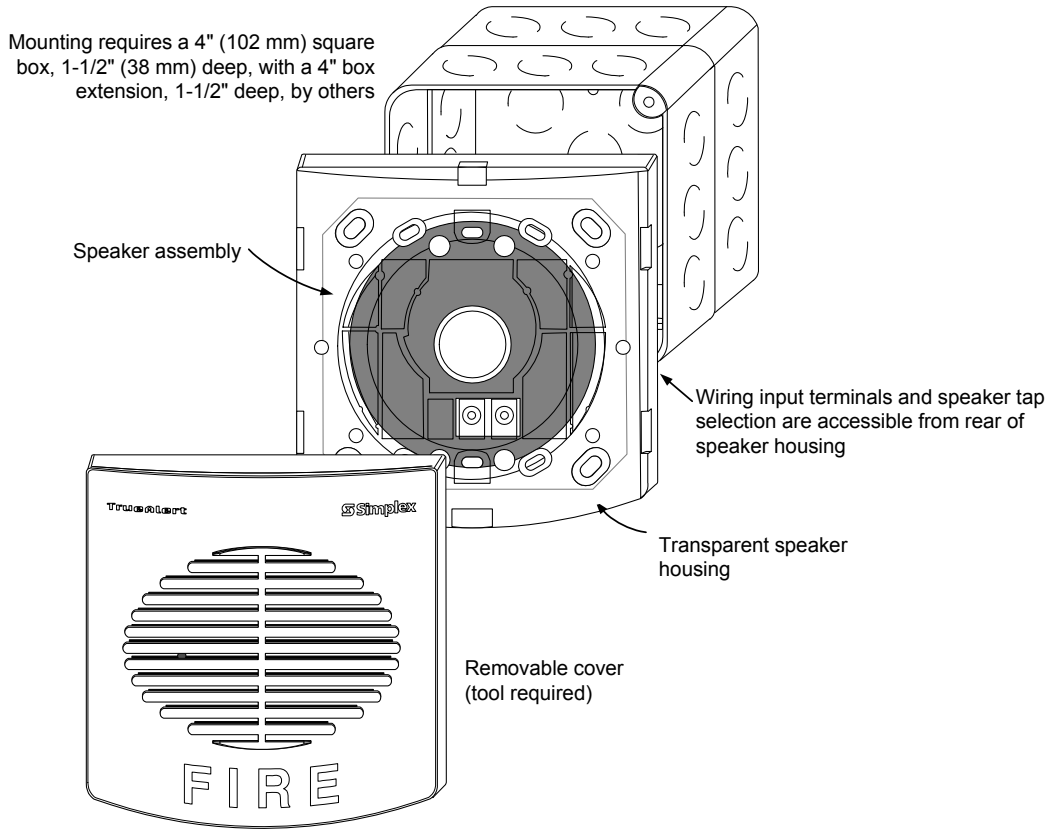
Mounting Adapters

Model	Description			Dimensions
4905-9941	Red	Surface mount adapter skirt; (*not ULC listed*)	Use to cover surface mounted 1-1/2” deep box with 1-1/2” deep extension external to wall (see diagram on page 3)	5 ⅜” H x 5 ¼” W x 3 $^{3}/_{16}$” D (136 mm x 133 mm x 81 mm) Total surface depth with speaker = 4 ⅝” (117 mm)
4905-9942	White			
2905-9946	Tile bridge for 4902-9721 Speaker			See diagram on page 3
4905-9931	Adapter Plate, red, for mounting to 2975-9145 box (typically for retrofit, may be mounted vertical or horizontal)			8 $^{5}/_{16}$” x 5 ¾” x 0.060” Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Red mounting box, requires Adapter Plate 4905-9931			7 ⅞" x 5 ⅛" x 2 ¾" D (200 mm x 130 mm x 70 mm)

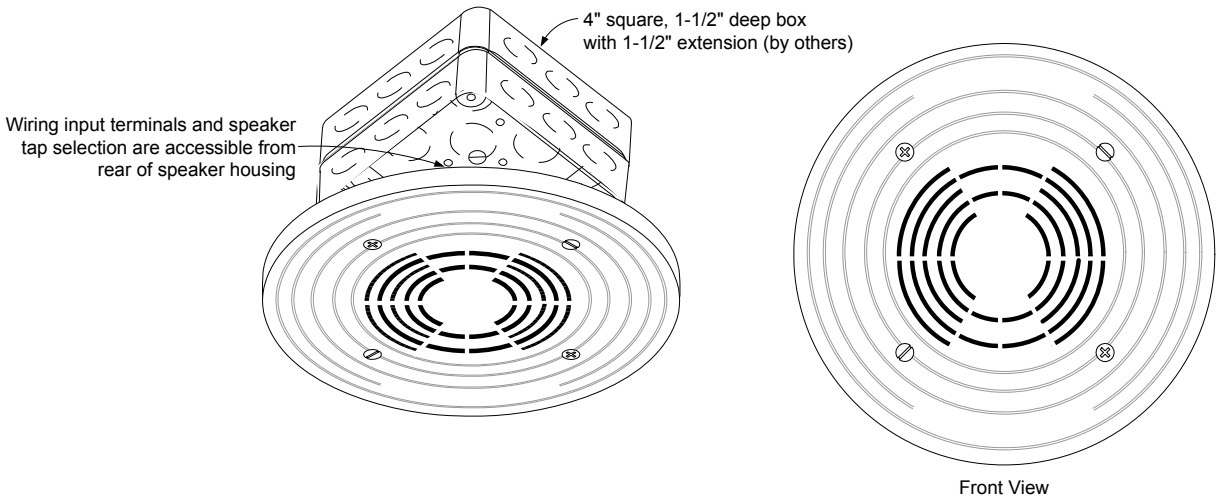
Covers and Guard

Model	Description		Dimensions
4905-9988	Red speaker cover with white “FIRE” lettering	Interchangeable with TrueAlert horns	5 ⅛” H x 5” W x 1 ½” D (130 mm x 127 mm x 38 mm)
4905-9989	White speaker cover with red “FIRE” lettering		
4905-9999	Red wire guard with mounting plate; compatible with semi-flush or surface mounted boxes; for use with 4” square electrical box mounting hole patterns only (UL listed by Space Age Electronics Inc.)		6 $^{1}/_{16}$” H x 6 $^{1}/_{16}$” W x 3 ⅛” D (154 mm x 154 mm x 79 mm)

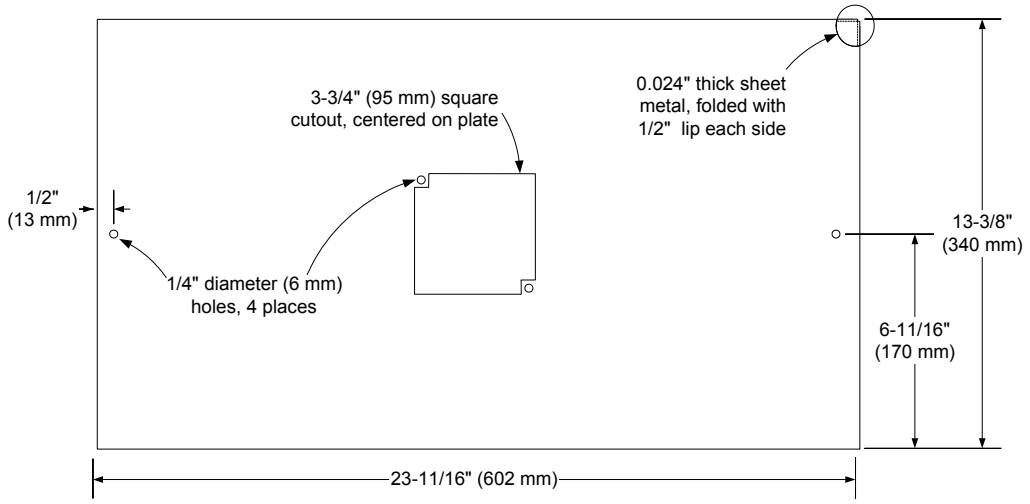
Wall Mount Speakers, Installation Reference



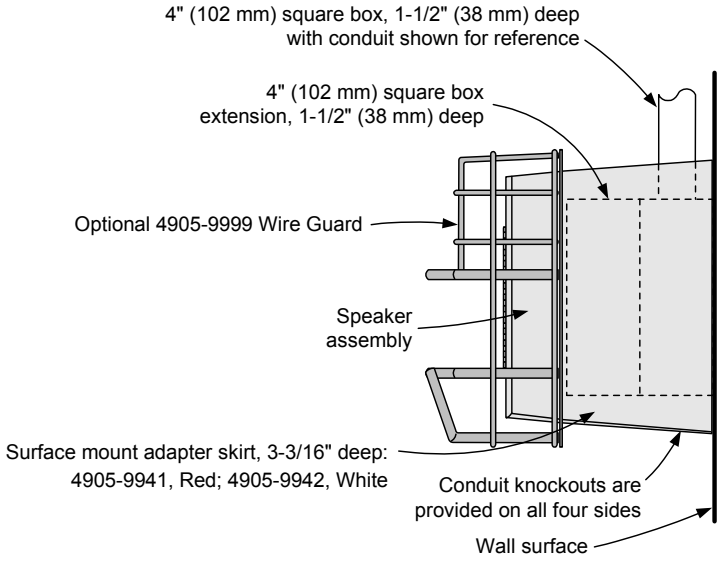
Round Speaker Installation Reference (typically ceiling mount, can be wall mounted)



2905-9946 Tile Bridge Dimensions



Surface Mounted Speaker Reference (Adapter Skirts are *Not ULC listed*)



Speaker Sound Output Specifications

Sound Output Ratings @ 10 ft (~3 m) **per UL 1480 Reverberant Chamber Testing**

Model	Type	Input Voltage	Selected Tap			
			¼ W	½ W	1 W	2 W
4902-9716 4902-9717	Rectangular Housing	25 VRMS	80 dBA	83 dBA	85 dBA	88 dBA
		70.7 VRMS	79 dBA	82 dBA	85 dBA	88 dBA
4902-9721	Round Housing	25 or 70.7 VRMS	79 dBA	82 dBA	85 dBA	88 dBA

Sound Output Ratings @ 3 m (~10 ft) **per ULC S541 Anechoic Chamber Testing**

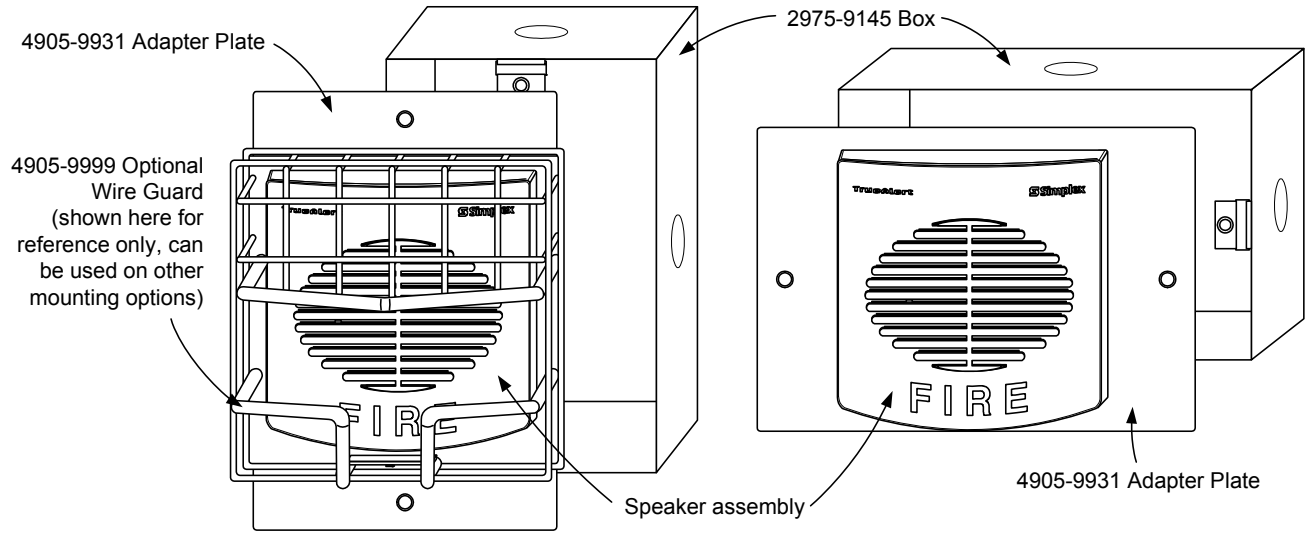
Model	Type	Input Voltage	Selected Tap			
			¼ W	½ W	1 W* (see note)	2 W* (see note)
4902-9716CA 4902-9717CA	Rectangular Housing*	25 VRMS or 70.7 VRMS	77 dBA	80 dBA	83 dBA	86 dBA
4902-9721CA	Round Housing*	25 VRMS or 70.7 VRMS	79 dBA	82 dBA	85 dBA	89 dBA

* NOTE: ULC Fire Alarm applications require use of 1 W or 2 W tap for Round Housing speakers; and 2 W tap for Rectangular Housing speakers.

Speaker Polar Dispersion Reference (per ULC S541 Anechoic Chamber Testing)

Attenuation	Angle
-3 dB	30° off-axis
-6 dB	55° off-axis

4905-9931 Adapter Plate Installation Reference



Eluxa outdoor 3R/4X Speaker and Speaker Strobe

EL3RSPK/EL4XSPK Speaker, EL3RSPST/EL4XSPST Speaker Strobe (Clear or amber lens)

The Wheelock Eluxa weatherproof series EL3RSPK/EL4XSPK speaker and EL3RSPST/EL4XSPST speaker-strobe appliances are designed for easy installation with a pre-wire capable EL3RBB mounting plate, or EL4XBB back box. All Eluxa weatherproof models are for indoor/outdoor use and wall or ceiling mount. The EL3RSPK/EL4XSPK and EL3RSPST/EL4XSPST Series Multi-Candela Speaker Strobes are designed for multiple power requirements with high dBA output at each power tap. The design incorporates a high efficiency speaker for maximum output at minimum power across a frequency range of 400-4000Hz.

Rugged

The cutting-edge solution delivers optimal performance thanks to its NEMA type 3R and 4X ratings, which make it resistant to corrosion and ice formation. The IP54 and IP66 ratings provide superior protection against dust and water, making it ideal for areas of high humidity, extreme heat, or severe cold.

Energy Efficient

With six candela settings in a single device, Eluxa features one of the industry's lowest current draws across the full candela range. The Eluxa outdoor product line reduces overall power consumption, allowing for more appliances on each circuit (NAC) and fewer power supplies.

Compliance and Approvals

- Certified to NEMA type 3R | 4X
- IP54 |IP66 Certified |Tested to IP67
- NFPA 72 2016 (Meets maximum light pulse duration of 20 ms)
- IEC 60529 2nd edition + amendment 3- August 2013
- FCC Part 15B / ICES-003- Class A
- UL 50 13th edition- October 2020
- UL 50E 3rd edition- October 2020
- UL464 11th edition: CAN/ULC 525 5th edition- May 2023
- UL1480 7th edition: CAN/ULC 541 5th edition- May 2023
- UL1638 6th edition: CAN/ULC 526 5th edition- April 2023
- California State Fire Marshal (CSFM) - pending
- Factory Mutual (FM) - pending
- ADA/NFPA/ANSI/OSHA

Complete and Compliant

The Wheelock Eluxa 3R/4X series meets NFPA 2016 20 millisecond light pulse duration code requirements. In addition, the Wheelock Eluxa and LED3 product lines have been UL/ULC listed as compatible with all Fire Alarm Control Panels (FACP) and accessories that have been determined to be compatible with Wheelock model RSS Strobe based products including the RSS, CH, E, EH, ET, ST, HS, MT, S8, SA, STH and Z Series. The maximum number of Eluxa devices per NAC is determined by dividing the maximum current rating of the FACP NAC by the total current rating of one Eluxa device, with a maximum of 105 Eluxa (or LED3) devices per NAC. Refer to FACP installation instructions for more detail. The Wheelock Eluxa Series and Exceder LED3 Series strobes may be installed in the same notification zone and field of view with any RSS Strobe based product.

Powering Business Worldwide

Complete and Compliant

Wheelock Eluxa 3R/4X Multi-Candela Strobes can provide a non-synchronized strobe appliance when connected directly to a Fire Alarm Control Panel (FACP), or provide a synchronized strobe appliance when used in conjunction with an FACP that incorporates the Cooper Wheelock sync protocol, a Dual Sync Module (DSM), or the Wheelock Power Supply.

Drawings

Figure 1. Eluxa outdoor 3R

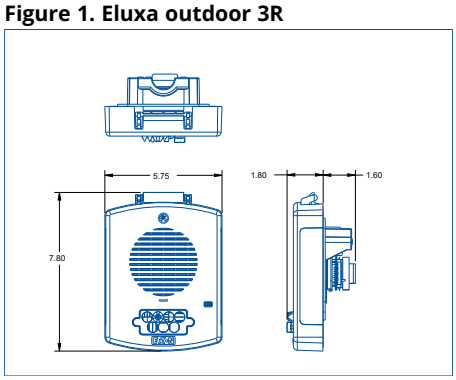


Figure 2. Eluxa outdoor 4X

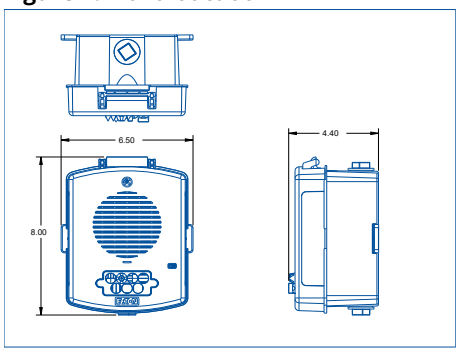


Table 1. EL3RSPK/EL4XSPK Speaker sound pressure level ratings

Setting	Reverberant dBA at 10Ft per UL1480/ULC541						
	1/8	1/4	1/2	1	2	4	8
25Vrms	76	79	82	85	88	---	---
70.7Vrms	76	79	82	85	88	91	94

Table 1A: Directional Characteristics

-3dB	+/- 80 Degrees Horizontal, +/- 80 Degrees Vertical
-6dB	+/- 90 Degrees Horizontal, +/- 90 Degrees Vertical

Table 2. EL3RSPST/EL4XSPST Speaker Strobe Ratings

		UL/ULC Max Current					
		24VDC					
Speaker Strobe (Clear)	**Regulated Voltage Range VDC**	**15**	**30**	**75**	**110**	**150**	**185**
EL3RSPST	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
EL4XSPST	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
	FWR	0.034	0.053	0.098	0.137	0.235	0.308
Speaker Strobe Amber (Amber strobe is certified as Emergency Warning Visual Signal.)		**15**	**30**	**75**	**95**	**150**	**177**
EL3RSPSTA (Amber)	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
EL4XSPSTA (Amber)	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
	FWR	0.034	0.053	0.098	0.137	0.235	0.308

Table 3. Specifications

Physical	
Material	Red or white textured UV stabilized, colored impregnated engineered plastic.
Weight	3R = 1.7 lbs 4X = 2.3
Lens	Light Emitting Diode (LED) in a rugged Lexan lens
Dimensions	3R: 7.8"L x 5.75"W x 1.6"H 4X: 8"L x 6.5"W x 4.5"H
Operating Temperature	Indoor/Outdoor Use. -40° C to 66° C (-40° F to 150° F) 95% R.H.
Mounting & Wire Connections	
Mounting	Wall & Ceiling
Wire Connections	18 to 12 AWG. 2 wire.
Power & General	
Operating voltage	16-33 VDC/FWR.
Strobe Output Rating	Clear 15/30/75/110/150/185 Cd Amber 15/30/75/95/150/177 Cd
Strobe Flash Rate	1 Hz
Synchronization Models	ALL

Table 4. Ordering Information

Model	Strobe Candela	Lens	Red	White	Lettering	Sync w/DSM or Wheelock Power Supplies
Speaker						
EL3RSPK-NR			X		n/a	X
EL3RSPK-NW				X	n/a	X
EL4XSPK-NR			X		n/a	X
EL4XSPK-NW				X	n/a	X
Speaker Strobe						
EL3RSPST-FR	15/30/75/110/150/185	Clear	X		FIRE	X
EL3RSPST-FW	15/30/75/110/150/185	Clear		X	FIRE	X
EL4XSPST-FR	15/30/75/110/150/185	Clear	X		FIRE	X
EL4XSPST-FW	15/30/75/110/150/185	Clear		X	FIRE	X
EL3RSPSTA-NW	15/30/75/95/150/177	Amber		X		X
EL3RSPSTA-ALW	15/30/75/95/150/177	Amber		X	ALERT	X
EL4XSPSTA-NW	15/30/75/95/150/177	Amber		X		X
EL4XSPSTA-ALW	15/30/75/95/150/177	Amber		X	ALERT	X

Table 5. Accessories

Standard Letter Plates	Color	Description
ELLP-FR (10Pk)	Red	ELUXA LETTER PLATE, RED, FIRE (10 PAIR PER PKG. - 1 Pair PER DEVICE)
ELLP-FW (10Pk)	White	ELUXA LETTER PLATE, WHITE, FIRE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-NR (10Pk)	Red	ELUXA LETTER PLATE, RED, NO LETTERING (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-NW (10Pk)	White	ELUXA LETTER PLATE, WHITE, NO LETTERING (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-AR (10Pk)	Red	ELUXA LETTER PLATE, RED, AGENT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-AW (10Pk)	White	ELUXA LETTER PLATE, WHITE, AGENT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-ALR (10Pk)	Red	ELUXA LETTER PLATE, RED, ALERT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-ALW (10Pk)	White	ELUXA LETTER PLATE, WHITE, ALERT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)

Standard Letter Plates	Color	Description
ELLP-COR (10Pk)	Red	ELUXA LETTER PLATE, RED, CARBON DIOXIDE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-COW (10Pk)	White	ELUXA LETTER PLATE, WHITE, CARBON DIOXIDE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-EVR (10Pk)	Red	ELUXA LETTER PLATE, RED, EVACUATE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-EVW (10Pk)	White	ELUXA LETTER PLATE, WHITE, EVACUATE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-MR (10Pk)	Red	ELUXA LETTER PLATE, RED, EMERGENCY (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-MW (10Pk)	White	ELUXA LETTER PLATE, WHITE, EMERGENCY (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-FFR (10Pk)	Red	ELUXA LETTER PLATE, RED, FIRE / FEU (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-FFW (10Pk)	White	ELUXA LETTER PLATE, WHITE, FIRE / FEU (10 PAIR PER PKG. - 1 PAIR PER DEVICE)

Architects and Engineers Specifications

The LED outdoor notification appliances shall be Wheelock® EL3RSPK/EL4XSPK speaker EL3RSPST/EL4XSPST speaker strobe appliances for wall and ceiling-mount applications with a low-profile design or approved equals. Special lettering, including FIRE, ALERT and no lettering, shall be available. The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) shall be listed for: Certified to NEMA type 3R | 4X, IP54 |IP66 Certified |Tested to IP67, NFPA 72 2016 (Meets maximum light pulse duration of 20 ms), IEC 60529 2nd edition + amendment 3- August 2013, FCC Part 15B / ICES-003- Class A, UL 50 13th edition- October 2020, UL 50E 3rd edition- October 2020, UL464 11th edition: CAN/ULC 525 5th edition- May 2023, UL1480 7th edition: CAN/ULC S541 5th edition- May 2023, UL1638 6th edition: CAN/ULC S526 5th edition- April 2023, California State Fire Marshal (CSFM)- pending, Factory Mutual (FM)- pending, ADA/NFPA/ANSI/OSHA. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP) with the ability to operate from 16 to 33 VDC/VFWR.

The EL3RSPST/EL4XSPST speaker strobe appliances shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Light Emitting Diode (LED) as the light source with a rugged Lexan® lens. The appliances shall be of low current design. The LED strobe flash duration shall be 20 ms. Where Multi-Candela appliances are specified, the strobe intensity shall have 6 field selectable settings at 15, 30, 75, 110, 150 and 185 candela for the clear lens and 15, 30, 75, 95, 150, 177cd for the amber lens. The selector switch for selecting the candela shall be tamper resistant. Appliances with candela settings shall show the candela selection in a visible location at all times when installed.

The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) appliances shall include a mounting plate or surface mounting box from the factory. The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) incorporates pre-wire, pre-test mounting plate and back box terminals. The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) rated to NEMA type 3R, IP54 and NEMA type 4X, IP66 respectively, when used with the included mounting accessory. Two wire appliance wiring shall be capable of directly connecting to the mounting plate or back box. Removal of an appliance shall result in a supervision fault condition by the Fire Alarm Control Panel (FACP). All notification appliances shall be backwards compatible.

The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) appliances shall provide installers ease of installation provided by the self-supporting hanging hinge feature.

When synchronization is required, the appliance shall be compatible with Wheelock®'s DSM Sync Modules, PS Power Supplies, Intelligent Notification Controller, SAFEPATH products or other manufacturer's panels with built-in Wheelock® Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync protocol fails to operate, the strobe shall revert to a non-synchronized flashrate and still maintain (1) flash per second over its Regulated Voltage Range.

The appliance shall also be designed so that the audible signal may be silenced while maintaining strobe activation when used with Wheelock® patented sync protocol.

Note: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Cooper Wheelock Inc., dba Eaton standard terms and conditions apply.

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Powering Business Worldwide

Simplex

*UL/ULC, CSFM Listed; FM Approved, OTCR/NYC Acceptance**

4100ES Fire Control Units

4100ES Addressable Fire Detection and Control Basic Panel Modules and Accessories

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

- 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.

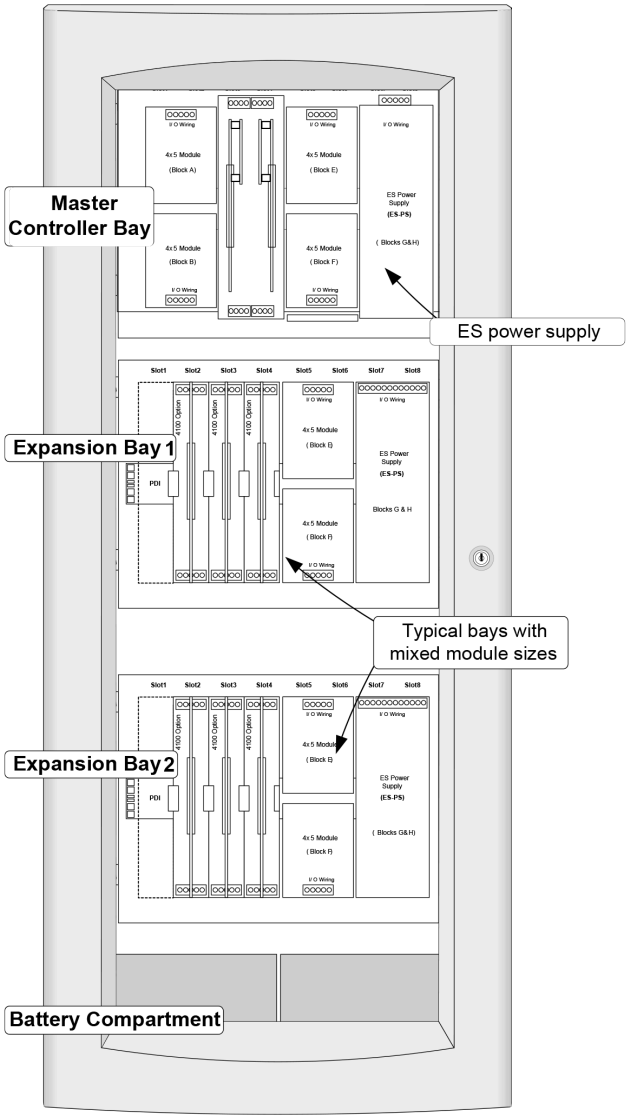


Figure 2: 4100ES Module Bay Reference

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.

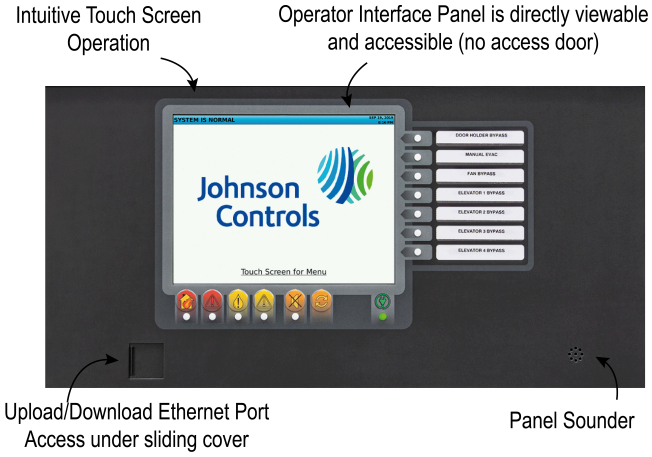


Figure 3: ES Touch Screen Display Interface

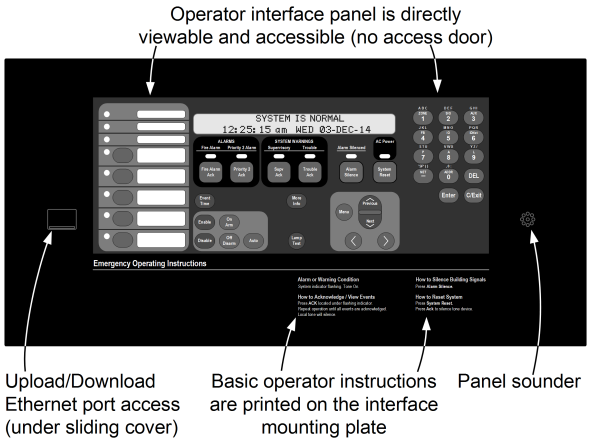


Figure 4: 2 x 40 Operator Interface

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.

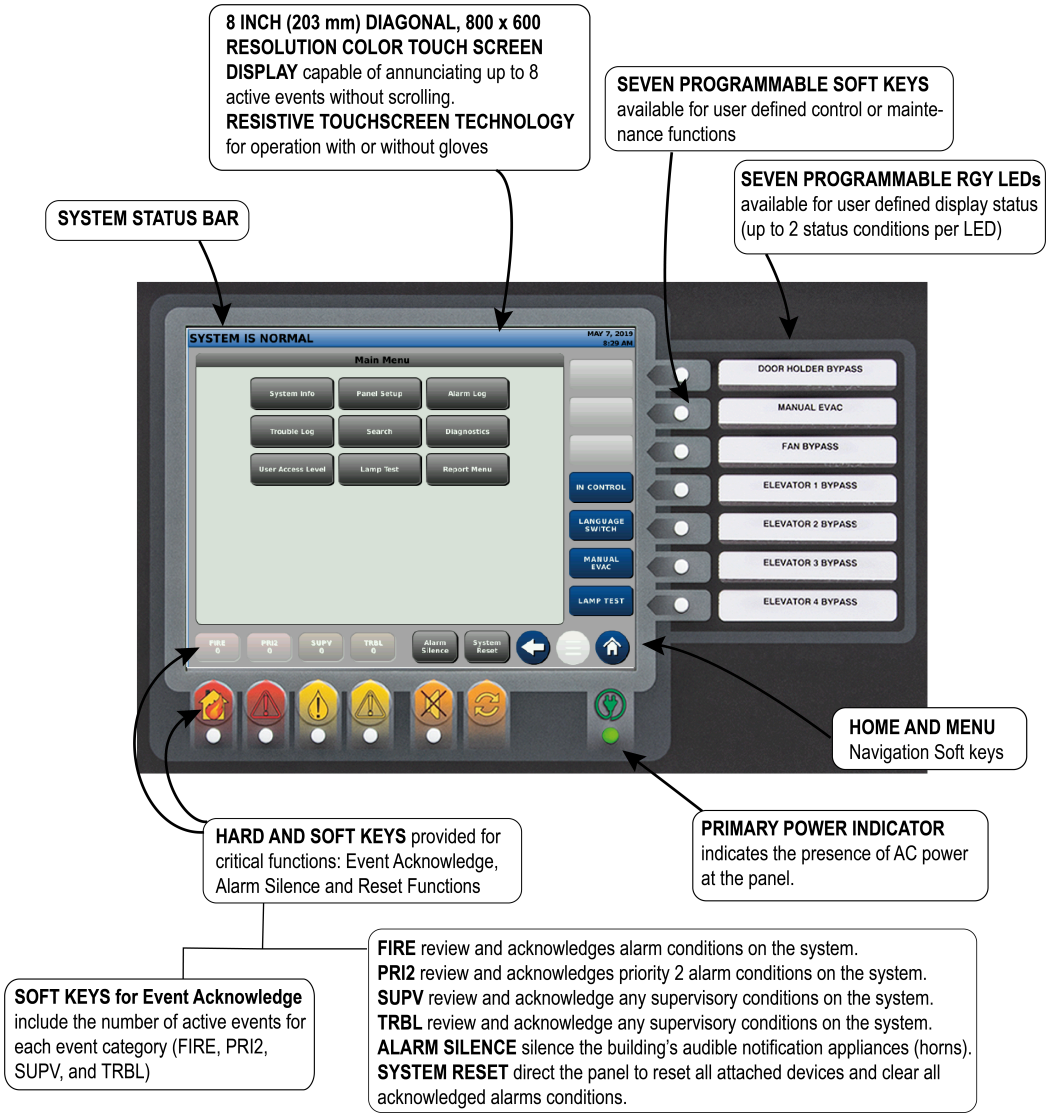


Figure 6: ES Touch Screen Display Operator Interface

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

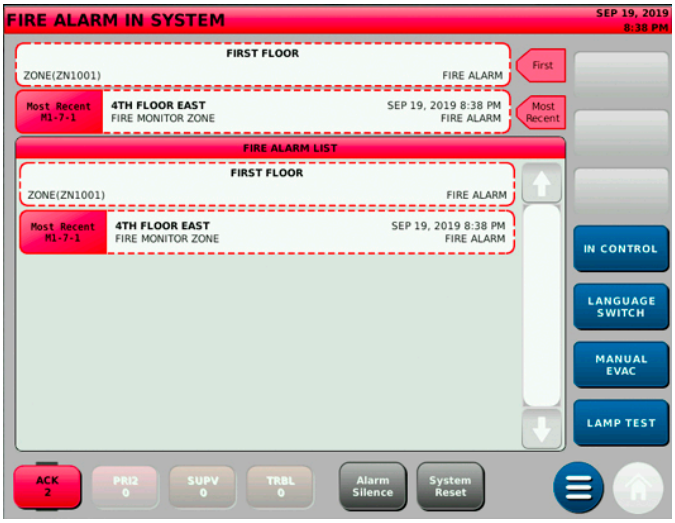


Figure 7: First and Most Recent Alarm Display

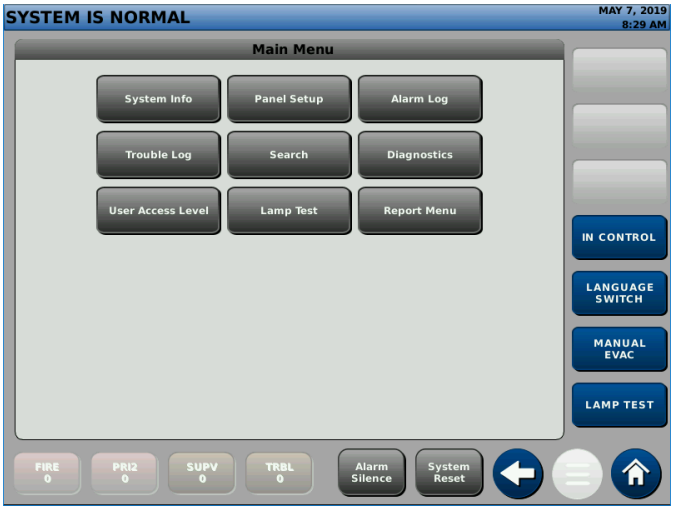


Figure 8: Main Menu

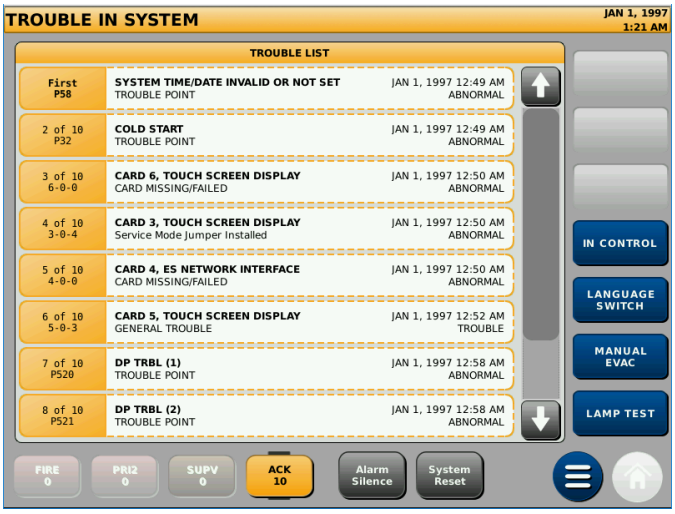


Figure 9: First Eight Active Trouble Events List

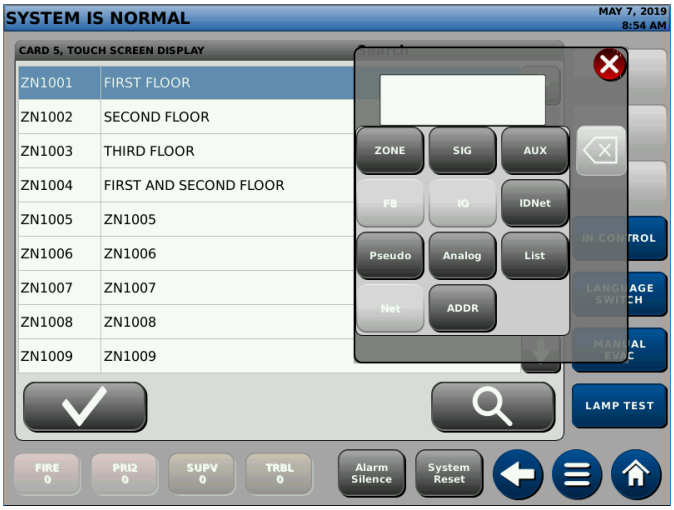


Figure 10: Direct Point Callup

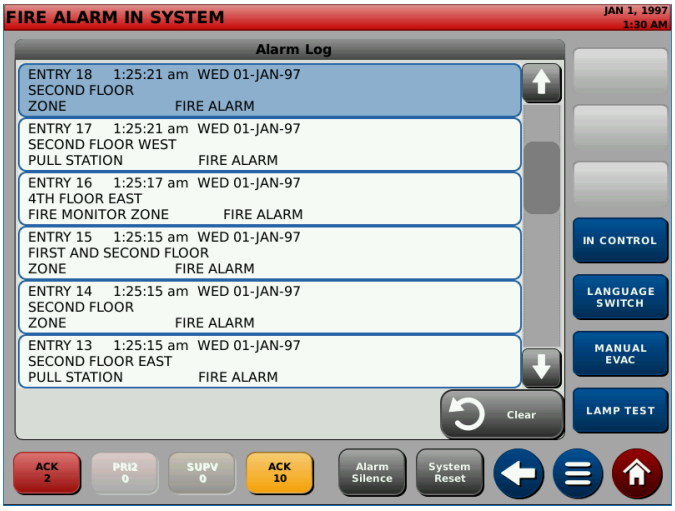


Figure 11: Alarm History Log

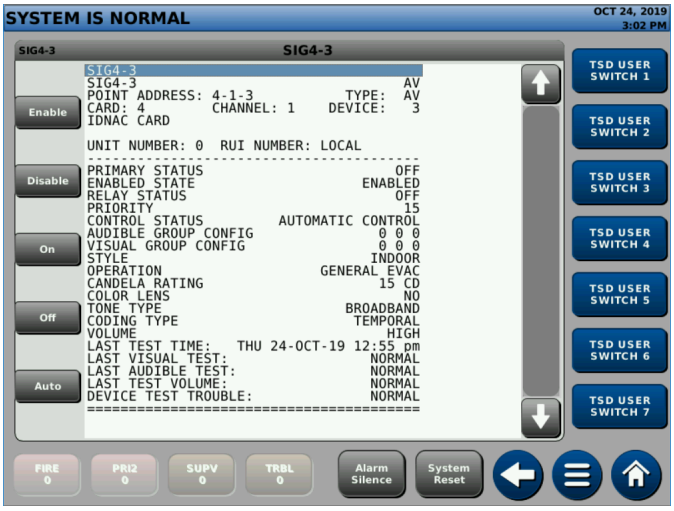


Figure 12: Detailed Point Status Screen for TrueAlert ES Appliance

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

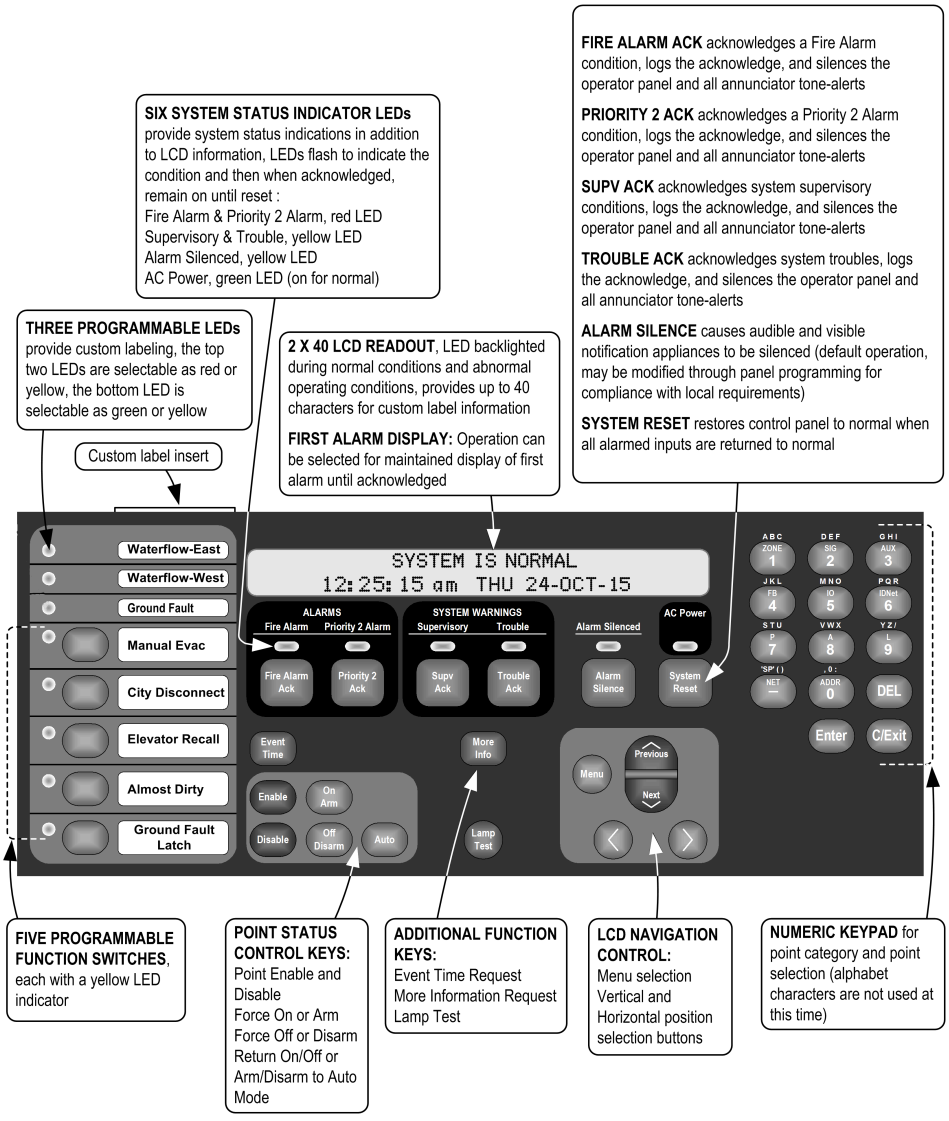
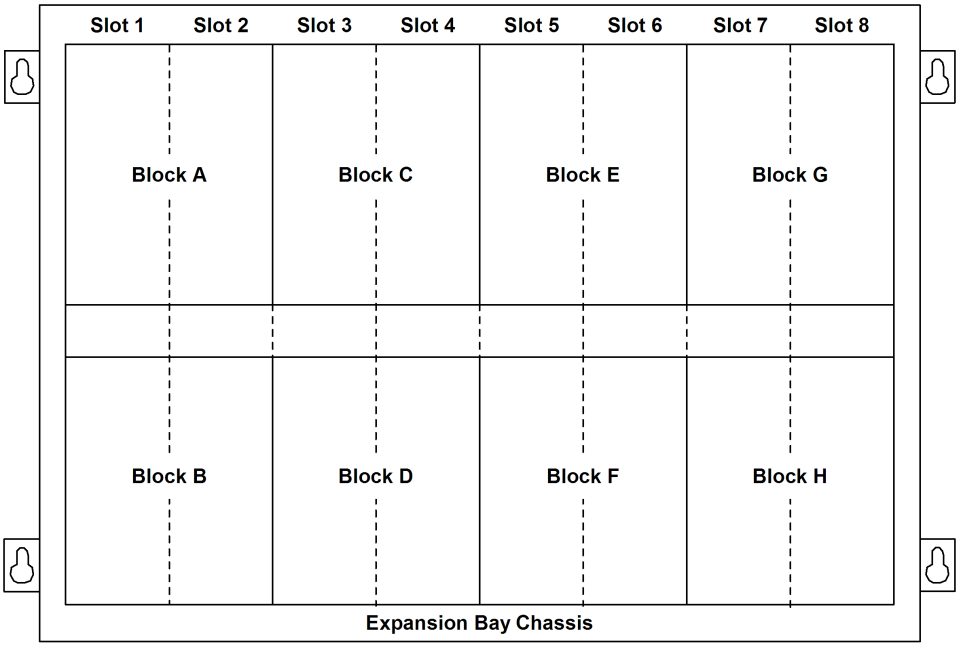


Figure 13: Operator Interface

Expansion Bay Module Loading Reference



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

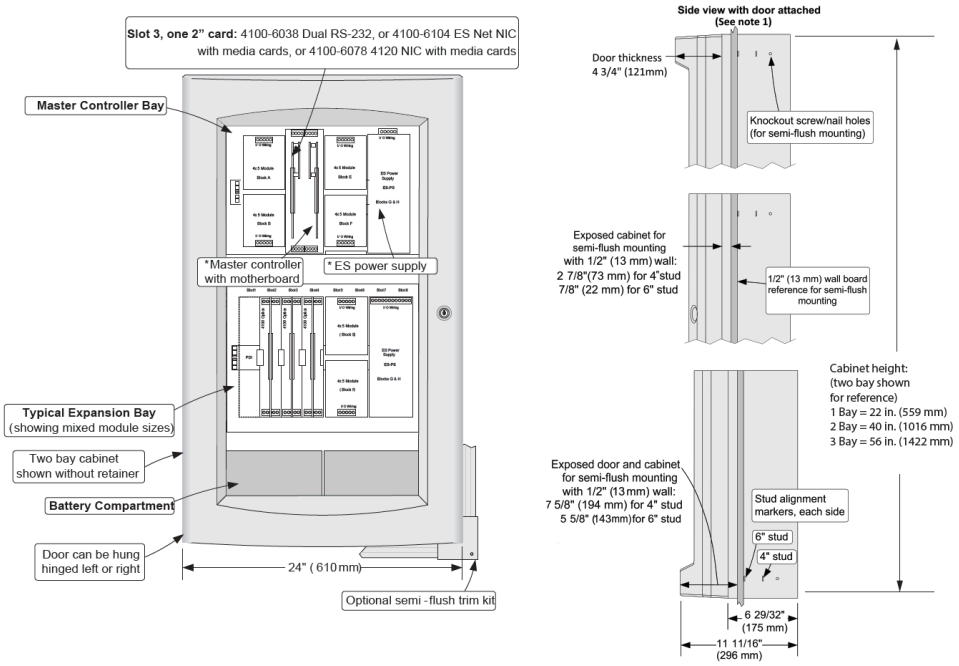


Figure 14: Mounting and CPU Bay Module Reference

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*

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

4009 IDNet NAC Extender for Control with IDNet Communications or Conventional NACs

Features

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

Four, Class B NACs are standard:

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

Input control options:

- IDNet addressable communications from a 4007ES, 4010, 4010ES, 4100U, or 4100ES Fire Alarm Control Panel. See note.
- Or from one or two conventional 24 VDC NACs with multiple output control options

IDNet communications control benefits:

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

WALKTEST operation is available with either input choice

Internal 8 A power supply/battery charger:

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

Optional 4009 IDNet NAC Extender modules:

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

UL Listed to Standard 864

External Accessories

IDNet communication fiber optic transmitters:

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

External battery cabinet for 18 Ah batteries

Introduction

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

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

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

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

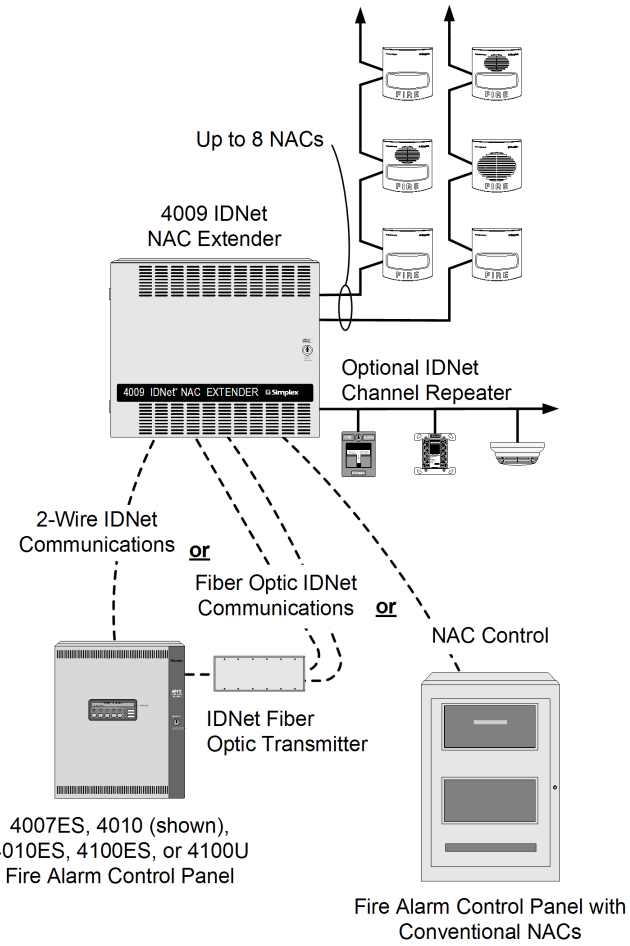


Figure 1: 4009 IDNet NAC Extender connection reference drawing

ULC listed model is 4009-9202CA. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-0026:214 for allowable values and/or conditions concerning material presented in this document. 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.

Application and operation information

IDNet addressable communications compatible. Up to 10, 4009 IDNet NAC Extenders can be controlled for each 4007ES, 4010ES, 4100U, or 4100ES IDNet communications channel; up to 5 can be controlled on the 4010 IDNet communications channel. Each output NAC can be individually controlled for general alarm or selective area notification requiring only one point address for each Extender. Individual Extender NACs can also be manually controlled from the host panel. IDNet controlled extenders will inform the host panel of troubles using IDNet communications. 4007ES, 4010ES, 4100ES, and 4100U control panels control using multi-point rules, refer to data sheet *S4090-0011* for details.

Optional IDNet repeaters. IDNet communications can be repeated with the optional IDNet Repeater Module or with the optional Fiber Optic Receiver Module. Up to 100 of the IDNet channel points can be repeated once (refer to Typical IDNet connection example and 4009 IDNet NAC Extender specifications for details). Repeated IDNet communications also support the "device level" earth fault location utility of the host panel.

Hardwire control applications. For applications where an existing (or new) conventional NAC needs additional power, the 4009 IDNet NAC Extender can be controlled directly from the NAC. Either one or two NACs, from either the same, or from different host fire alarm control panels, can be connected to control the 4009 IDNet NAC Extender output NACs. Multiple control selections provide flexible operation. (See Hardwire Control Connection Information for more detail.) Alarms from the host panel will activate the four, 4009 IDNet NAC Extender NACs (or optionally, 8 NACs) to extend the alarm.

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

Product selection

Table 1: Standard models

Model	Description	
4009-9201**	120 VAC input	4009 IDNet NAC Extender with 4, Class B NACs and 8 A power supply
4009-9301	240 VAC input	
4009-9202CA (ULC listed model)	120 VAC input	-
** 4009-9201 has been seismic tested and is certified to IBC and CBC standards as well as to ASCE 7 categories A through F, requires battery brackets as detailed on data sheet *S2081-0019*		

Table 2: Optional modules (for on-site installation)

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

Table 3: Battery selection (select battery size using system requirements)

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

Table 4: External accessories (select using system requirements)

Model	Description		Comments
4090-9105	IDNet Fiber Optic Transmitter	Class B operation	Mounts in six-gang electrical box, refer to 4090-9105/9107 IDNet fiber optic transmitter mounting information for mounting details **Note:** Class B Fiber Transmitter Rev C or higher, IS NOT COMPATIBLE with Class B Fiber Receiver before Rev J.
4090-9107		Class X operation	
4009-9801	External battery cabinet for up to 18 Ah batteries, beige		16-1/4 in. W x 13-1/2 in. H x 5-3/4 in. D (413 mm x 343 mm x 146 mm)
4081 series	End-of-Line resistor harnesses; see data sheet *S4081-0003* for details		

Typical IDNet connection example

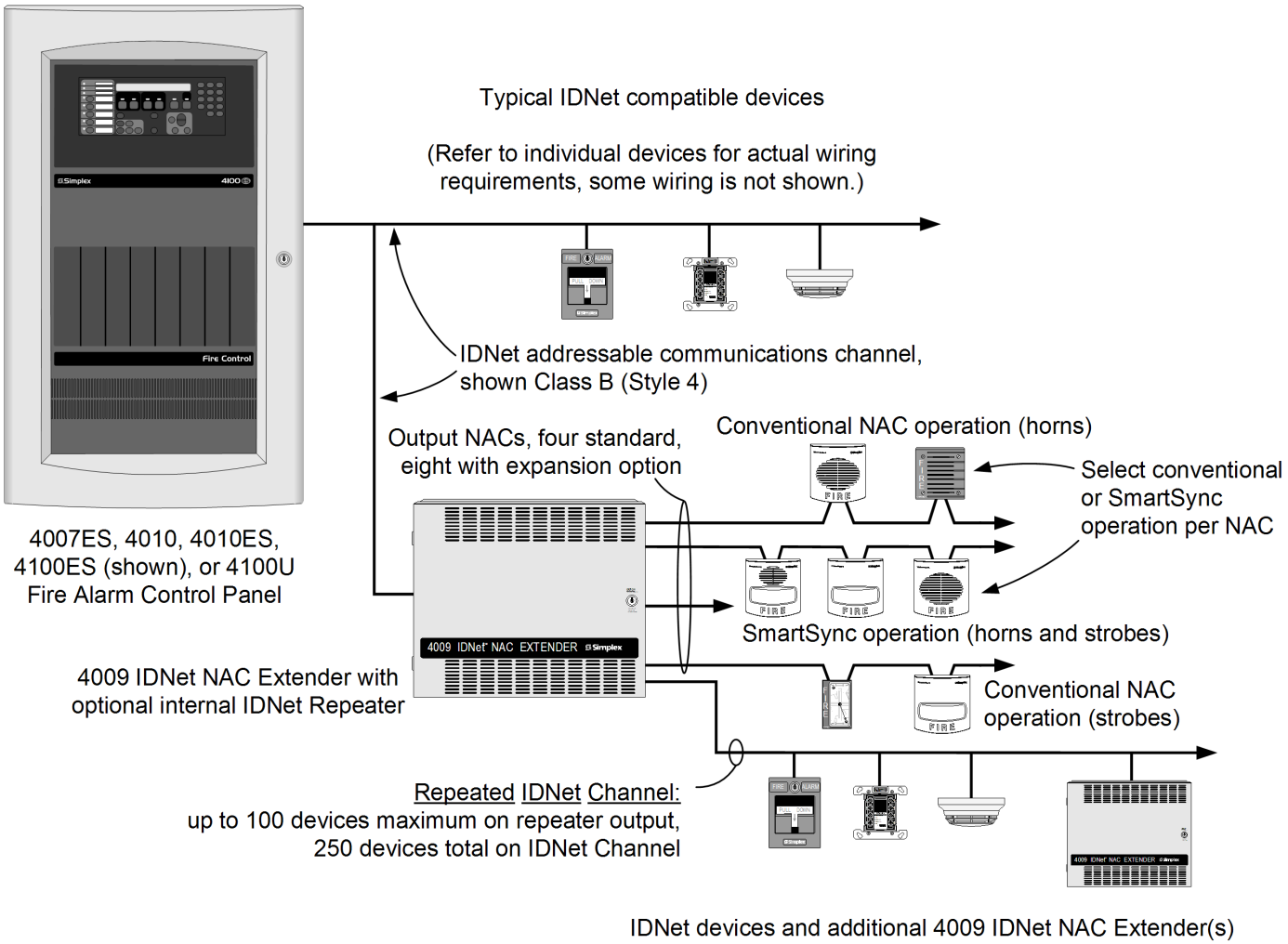


Figure 2: Typical IDNet connection example

Note: Up to 10 4009 IDNet NAC Extenders may be connected using 4007ES, 4010ES, 4100U, or 4100ES IDNet channel, up to 5 on the 4010 IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver).

Typical fiber optic system connections

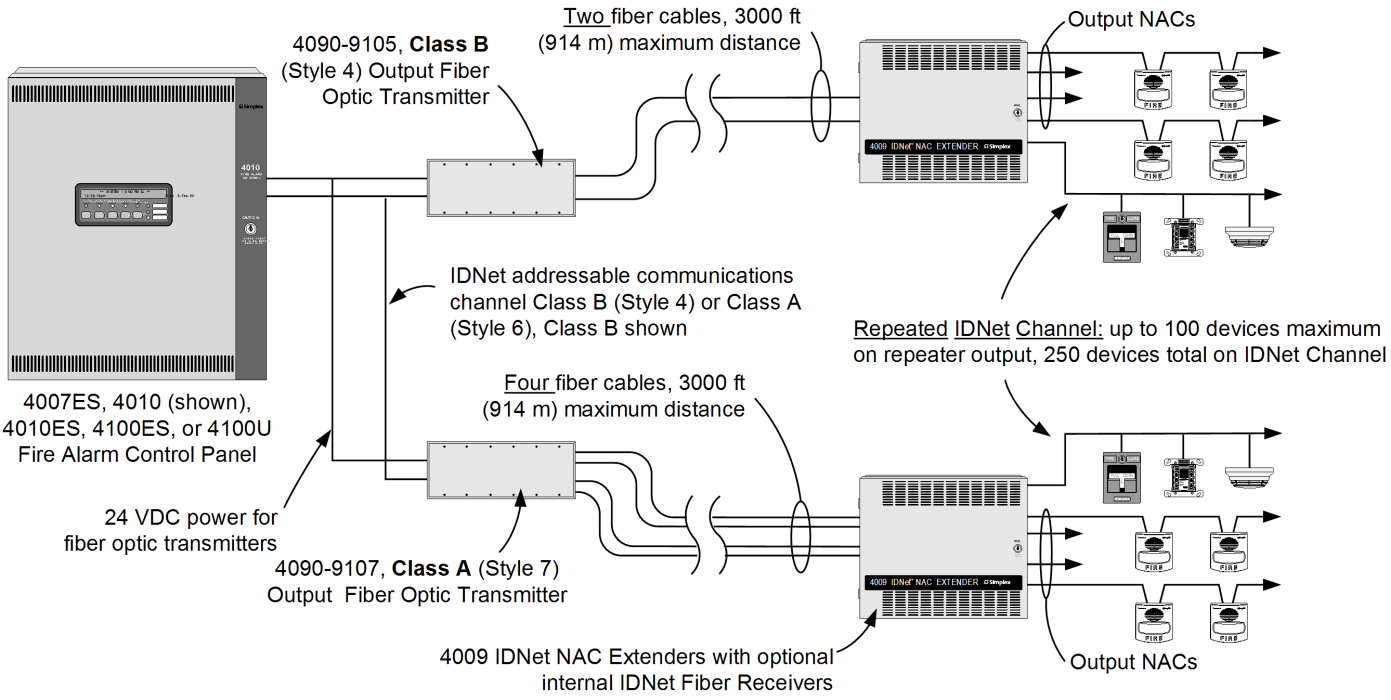


Figure 3: Typical fiber optic system connections

Note: Up to 10 4009 IDNet NAC Extenders may be connected per 4007ES, 4100ES, or 4010ES. Up to 5 4009 IDNet NAC Extenders may be connected on the 4010 IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver). Fiber optic transmitters connect to only one receiver in a 4009 IDNet NAC Extender.

Hardwire Control Connection Information

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

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

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

Table 5: Conventional NAC Output Operation Options

Input	A	B	C
NAC 1	NACs 1 and 2, 5 and 6	NACs 1 - 4	NACs 1 - 8
NAC 2	NACs 3 and 4, 7 and 8	NACs 5 - 8	-

Table 6: SmartSync NAC Output Operation

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

SmartSync Notification Appliance Control

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

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

Hardwire control NAC connection cne-line reference diagram

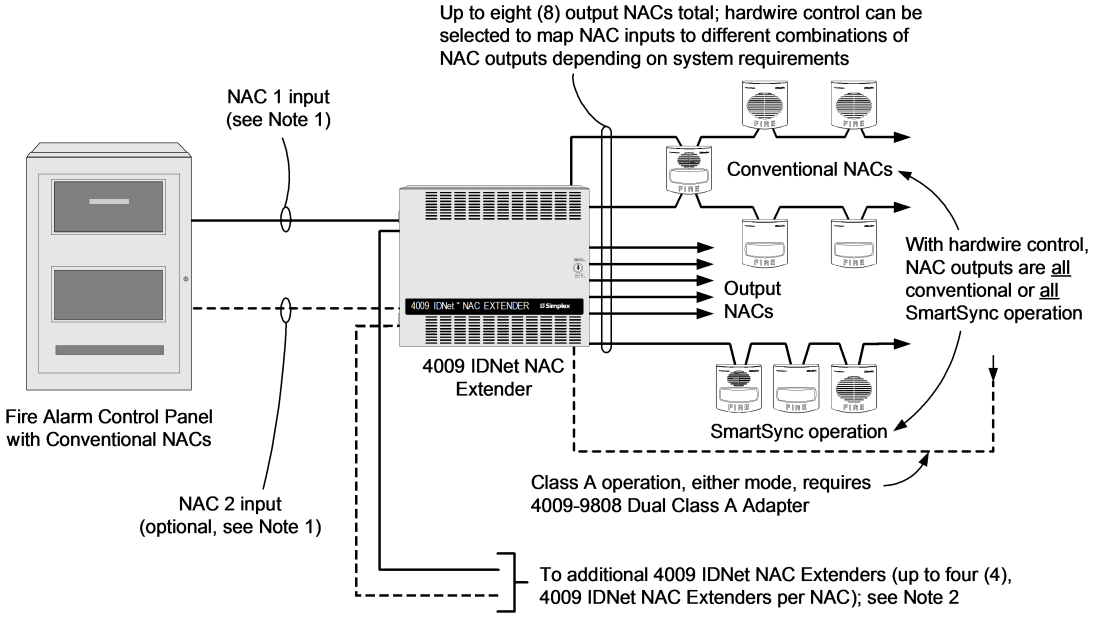


Figure 4: Hardwire control NAC connection one-line reference diagram

Note:

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

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

4009 IDNet NAC Extender specifications

Table 7: Input ratings

Specification	Rating
120 VAC input (4009-9201)	3A @ 102 VAC -132 VAC, 60 Hz
240 VAC input (4009-9301)	1.5A @ 204 VAC -264 VAC, 50 Hz /60 Hz
Hardwire control from external NACs, input requirements	Conventional reverse polarity operation
	5 mA maximum; 16 VDC to 33 VDC

Table 8: Output ratings

Specification	Rating
Total rating	8 A, Special application appliances 6 A, regulated 24 DC appliance power
Standard NACs	2 A each, special application or regulated 24 DC appliance power
Optional NACs (requires 4009-9807)	1.5 A each, Special Application appliances 1 A each, Regulated 24 DC appliance power
Special application appliances	Simplex non-addressable horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)
Regulated 24 DC appliances	Power for other UL listed appliances; use associated external synchronization modules where required
Strobe operation	Up to 33 strobes for each NAC can be synchronized; output NACs configured for Simplex synchronized strobe operation are synchronized to each other
Auxiliary output	500 mA @ 24 VDC nominal

Table 9: Optional modules ratings

Specification		Rating
IDNet Repeater Module (4009-9809)	Input power	70 mA @ 24 VDC, system supplied
	IDNet input, one address	Maximum distance from IDNet source is 2,500 ft (762 m)
	IDNet output specifications	Repeated IDNet output for up to 100 devices (total IDNet devices not to exceed 250 for each channel)
		Maximum distance to farthest device is 2,500 ft (762 m)
		Total distance including "T-taps" is 10,000 ft (3048 m)
		Class A loop maximum distance is 2,500 ft (762 m), no "T" taps

Table 10: Fiber optic receiver modules

Specification	Rating
Input current	4009-9810 , Class B, 65 mA @ 24 VDC, system supplied
	4009-9811 , Class X, 80 mA @ 24 VDC, system supplied
IDNet output specifications	Same as those for repeater module
Fiber optic transmission distance	3000 ft (914 m) maximum

Table 11: General specifications

Specification	Rating
Operating temperature	32° F to 120° F (0° C to 49° C)
Operating humidity range	10% to 90% RH from 32° F to 104° F (0° C to 40° C)
Wiring Connections* **Note:** * Metric wire equivalents: 18 AWG = 0.82 mm^2; 12 AWG = 3.31 mm^2	Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)

Fiber optic transmitter specifications

Table 12: Fiber optic transmitter specifications

Specification	Rating
Input voltage	18.9 VDC -32 VDC from compatible listed fire alarm supply
Input current	4090-9105, Class B, 30 mA @ 24 VDC
	4090-9107 , Class X, 35 mA @ 24 VDC
Fiber optic connections and cable requirements	Multimode, graded index, 50/125µm, 62.5/125 µm, 100/40 µm, or 200 µm
	Type ST connectors
	4090-9105, Class B operation, two fiber cables required
	4090-9107 , Class X operation, four fiber cables required
Module size (with mounting bracket)	6-13/16 in. W x 3-3/4 in. H x 1-1/8 in. D (173 mm x 95 mm x 29 mm)
On-board status indicators	Green LED flashing = transmit
	Red LED flashing = receive
	Separate red LED on 4090-9107 = Class X receive
Communications	Simplex IDNet
Fiber optic transmission distance	3000 ft (914 m) maximum
Wiring connections*	Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)
Operating humidity	10% to 90% RH from 32° F to 104° F (0° C to 40° C)
Operating temperature	32° F to 120° F (0° C to 49° C)
* Metric wire equivalents: 18 AWG = 0.82 mm^2; 12 AWG = 3.31 mm^2	

4009 IDNet NAC Extender mounting and module placement information

Additional four point module shown model 4009-9807 .

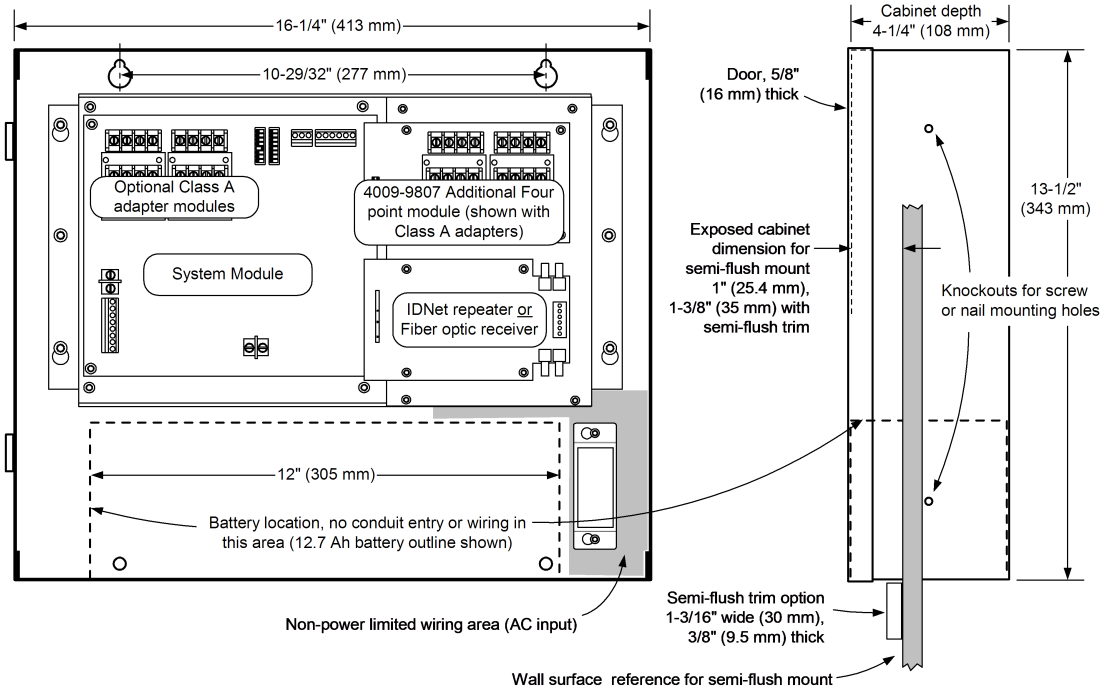


Figure 5: 4009 IDNet NAC Extender mounting and module placement information

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

4009 IDNet NAC extender cabinet with door detail

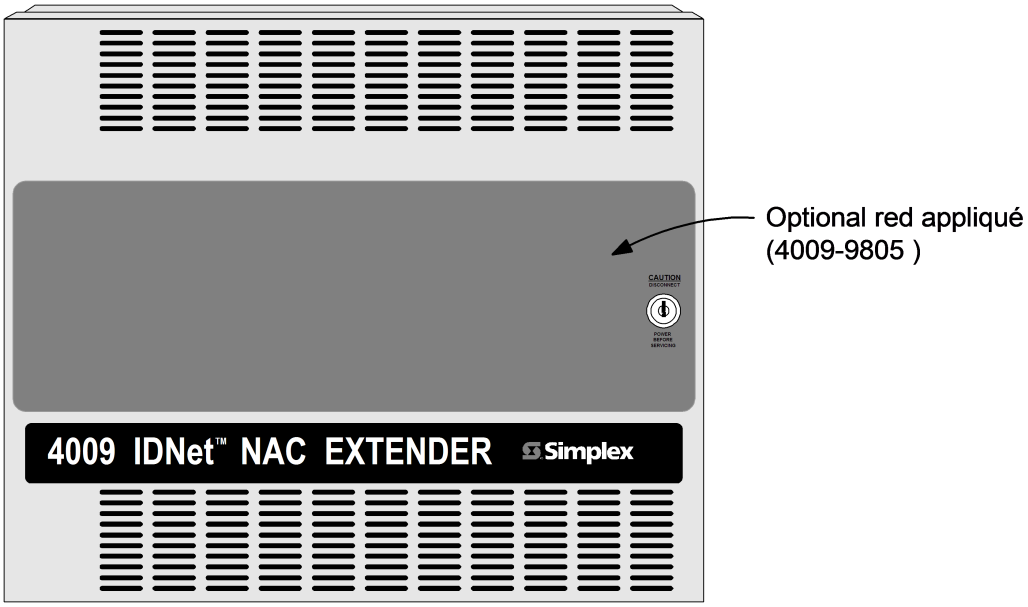


Figure 6: 4009 IDNet NAC extender cabinet with door detail

4009 IDNet NAC extender current calculation chart

Step 1. Calculate the basic extender battery requirements (minus NAC loads)

Panel, NAC Options, and Auxiliary Power (underlined model numbers are optional modules).

Model	Description		Supervisory current	Actual supervisory	Alarm current	Actual alarm
4009-9201	120 VAC input	Basic Panel	85 mA	85 mA	185 mA	185 mA
4009-9301	240 VAC input					
4009-9807	Additional four point NAC		40 mA	+_____	40 mA	+_____
4009-9808	Dual class A adapter (no additional current)		–	–	–	–
Auxiliary power output			(500 mA maximum)	+_____	(500 mA maximum)	**+ [A1] _____**
Basic panel supervisory current				**= [S1] ____**		
Basic panel alarm current						**= [A2] _____**

Step 2. Calculate IDNet output module and device current (if used)

4009-9809	IDNet Repeater	Select one for each extender	70 mA	+_____	70 mA	+_____
4009-9810 *	Fiber Optic Receiver, Class B		65 mA		65 mA	
4009-9811 *	Fiber Optic Receiver, Class X		80 mA		80 mA	
IDNet devices (connected to repeater or receiver above), 0.7 mA each, maximum of 100			Total devices x 0.7 mA each	+_____	Total devices x 0.7 mA each	+_____
Note: IDNet Fiber Optic Transmitter current is supplied from the host fire alarm control panel	IDNet module supervisory current			**[S2] = ____**		
	IDNet module alarm current					**= [A3] _____**
Step 2. Calculate available NAC current				Maximum available current		**= 8 A***
				Subtract auxiliary power output		**- [A1] _____**
				Subtract IDNet module current		**- [A3] _____**
* 8 A for special application appliances; 6 A for regulated 24 DC appliances				Available NAC current		**= [A4] _____**

Step 3. Calculate actual NAC loading (Limited to available NAC current per Step 2.)

NAC type	NAC circuit #	NAC alarm current
Standard panel NACS, 2 A maximum for each NAC	Circuit 1	+_____
	Circuit 2	+_____
	Circuit 3	+_____
	Circuit 4	+_____
Optional four point NAC module, 1.5 A maximum special application rating, **1 A maximum** regulated 24 DC rating, per NAC	Circuit 5	+_____
	Circuit 6	+_____
	Circuit 7	+_____
	Circuit 8	+_____
Total actual NAC load alarm current		**= [A5] _____**

Step 4. Calculate total supervisory current

Total supervisory current = Basic panel current **[S1]** + IDNet Module current **[S2]** =	_____

Step 5. Calculate total alarm current

Total alarm current = Basic panel current [A2] + IDNet module current **[A3]** + actual NAC Current **[A5]** =	_____

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Features

Rechargeable, sealed lead-acid batteries

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

Battery sizes

- Batteries for internal mounting from 6.2 Ah to 50 Ah
- Larger batteries, up to 110 Ah, for mounting in external battery cabinets. Models with internal chargers are available.

Battery cabinets with chargers

Battery cabinets with chargers communicate with their connected fire alarm control unit (FACU) and are available for 4100ES/4010ES/4100U Series and 4010 Series FACUs.

Description

Simplex rechargeable sealed-lead acid batteries provide reliable and repeatable discharge and recharge characteristics for use in fire alarm and other systems applications. They feature immobilized electrolyte in an absorbent separator, which provides rated capacity on the first cycle.

Because of their sealed construction, packaging is possible within the system electronics enclosure, see Figure 3. When this is applicable, the quantity of system cabinets and the battery wiring distances are minimized. Where required, external battery cabinets can be close-nippled to the FACU to house larger batteries with battery chargers available in some battery cabinet sizes.

Battery details

Charging: Compatible with Simplex battery chargers.

Series connections: Connect the batteries in series to produce 24 V system voltage. Battery sets must be of identical voltage, model number, appearance, and have approximately the same date of manufacture for optimal operation.

Testing: Test battery capacity with a sealed lead-acid battery tester to withdraw a minimum of battery charge. Testing is available through your local Simplex product supplier.

Shipping: Sealed lead-acid batteries only ship by ground or sea transportation.

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

Seismic activity applications: Battery brackets are available for systems tested for compliance with specific batteries. Refer to data sheet *S2081-0019* for details.

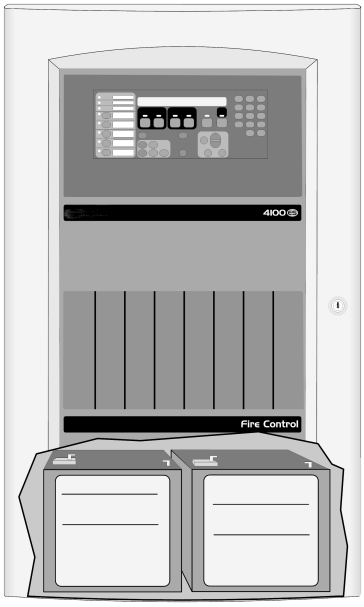


Figure 1: Compatible sealed lead-acid batteries inside an FACU cabinet

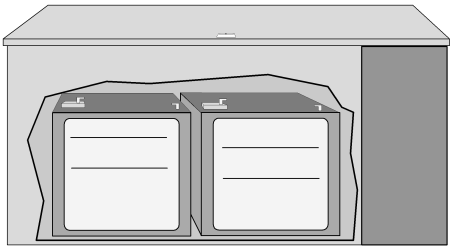


Figure 2: A remote battery cabinet for larger battery requirements

* Refer to page 4 for battery charger and cabinet agency listings. The batteries detailed in this document meet the requirements of UL, ULC, and Factory Mutual for use with respective equipment battery chargers as listed below. Contact your local Simplex product supplier for proper battery selection per system requirements. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Battery construction reference

Actual appearance varies with battery size.

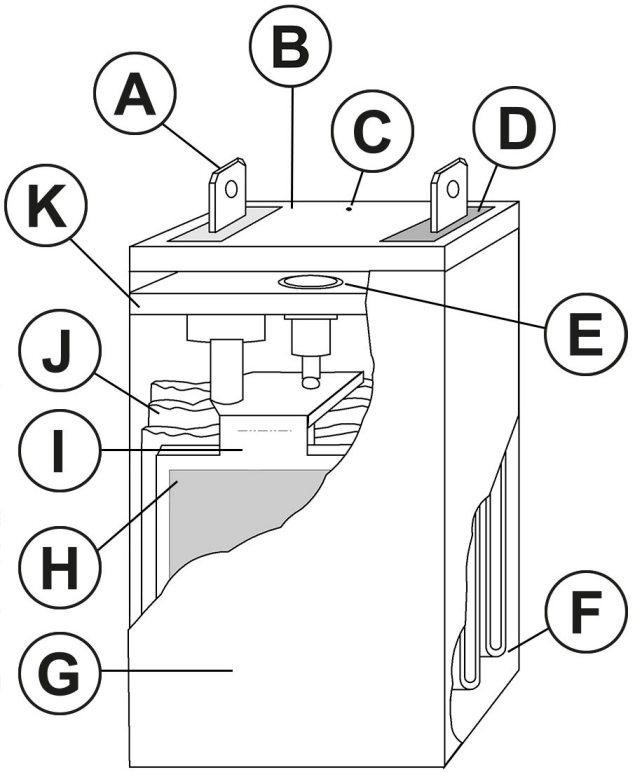


Figure 3: Battery contruction reference

Callout	Description	Callout	Description
A	Quick connect or post type terminal. Type varies with battery size.	B	Sealed outer cover
C	Vent hole	D	Potting material, black for negative, red for positive. Polarity is also clearly marked with + and -.
E	Pressure relief valve	F	Semi-permeable membrane separator
G	Cell case, high impact polystrene	H	Lead-calcium grids
I	Cell group	J	Absorbent separator used to immobilize electrolyte
K	Inner cover	-	-

Battery size specifications

Battery model	Capacity at 20 hour discharge rate	Width*	Depth*	Height with terminals	Approximate weight*
2081-9272	6.2 Ah	6.12 in. (156 mm)	2.65 in. (68 mm)	4 in. (102 mm)	5.75 lb (2.6 kg)
2081-9286	7.0 Ah	6.12 in. (156 mm)	2.65 in. (68 mm)	4 in. (102 mm)	5.75 lb (2.6 kg)
2081-9274	10 Ah	6 in. (153 mm)	4.06 in. (103 mm)	4 in. (102 mm)	9.2 lb (4.2 kg)
2081-9288	12.7 Ah	6 in. (153 mm)	4 in. (102 mm)	4 in. (102 mm)	9 lb (4.1 kg)
2081-9275	18 Ah	7.25 in. (184 mm)	3.38 in. (86 mm)	6.63 in. (168 mm)	14.3 lb (6.5 kg)
2081-9287	25 Ah	6.63 in. (168 mm)	5 in. (127 mm)	7 in. (178 mm)	19.4 lb (8.8 kg)
2081-9271 (rectangular case, typically for service)	33 Ah	12.5 in. (318 mm)	3.38 in. (86 mm)	7.06 in. (179 mm)	26.6 lb (12.1 kg)
2081-9276 (square case, use for new)	33 Ah	7.75 in. (197 mm)	5.25 in. (133 mm)	6.75 in. (171 mm)	26.5 lb (12 kg)
2081-9296	50 Ah	9 in. (229 mm)	5.5 in. (140 mm)	8.88 in. (225 mm)	41.8 lb (19 kg)
2081-9279	110 Ah	11.38 in. (289 mm)	10.5 in. (267 mm)	9 in. (230 mm)	82 lb (37 kg)

* Dimensions and weight are per battery and are for reference only. Exact size may vary. Refer to Battery compatibility for FACU mounting and External battery cabinet compatibility reference for mounting compatibility. Batteries are 12 V each and connected in series for 24 V system use.

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

General battery specifications

Specifications	
Nominal Voltage Rating	12 V
Discharge Rating	20 hour rate
Typical Charge/Discharge Cycles	100 cycles to 150 cycles
Preferred Charge Temperature Range	60°F to 90°F (15.6°C to 32.2°C)

Battery compatibility for FACU mounting

Note: Refer to individual FACU product data sheets for additional battery application information.

Table 1: Battery compatibility for FACU mounting

Simplex FACU model series										
Battery Model	**Capacity**	**4003EC**	**4004R**	**4007ES & 4005**	**4006 & 4008**	**4009 (all models)**	**4010**	**4010ES**	**4100ES/ 4100U**	**4100 & 4120 (2, 4 or 6-Unit)**
2081-9272	6.2 Ah	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2081-9286	7.0 Ah	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2081-9274	10 Ah	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2081-9288	12.7 Ah	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2081-9275	18 Ah	Ext	Note 3	Yes	Ext	Ext	Note 2	Yes	Yes	Yes
2081-9287	25 Ah	Ext	Note 3	Ext	Ext	N/A	Yes	Yes	Yes	Yes
2081-9271 rectangular	33 Ah	Ext	Note 3	Ext	N/A	N/A	Note 3	Yes	Yes	Ext
2081-9276 square	33 Ah	Ext	Note 3	N/A	N/A	N/A	Note 3	Yes	Yes	Yes
2081-9296	50 Ah	N/A	Note 3	N/A	N/A	N/A	Note 3	Note 4	2 or 3 bay	Ext
2081-9279	110 Ah	Requires external battery cabinet, compatible with 4100ES, 4010ES, 4100, and 4120 Series only								

Yes = Compatible with included FACU cabinet.

Ext = Requires external battery cabinet, refer to External battery cabinet specification reference.

Note:

1. These batteries meet the requirements of UL, ULC, and Factory Mutual for use with respective equipment battery chargers listed above. Contact your local Simplex product supplier for proper battery selection per system requirements.
2. 4010 Cabinets accommodate 2081-9275, 18 Ah batteries, but do not allow bottom entry conduit.
3. Use 4081 series companion cabinet and charger, refer to External battery cabinet specification reference.
4. For two bay cabinets only, 50 Ah batteries will fit in the cabinet.

External battery cabinet compatibility reference

Table 2: External battery cabinet compatibility reference

Battery cabinets without chargers, connected to FACU charger							
Cabinet	**Panel compatibility**	**Battery**					
		2081-9275 18 Ah*	2081-9287 18 Ah*	2081-9271 Rectangular 33 Ah	2081-9276 Square 33 Ah	2081-9296 50 Ah	2081-9279 110 Ah
2081-9280	4100ES, 4010ES, 4100U, and 4100+	N/A	N/A	N/A	N/A	N/A	Yes
2081-9281	multiple	Yes	Yes	Yes	Yes	Yes	N/A
2081-9282							
4009-9801	multiple	Yes	Yes**	N/A	Yes	N/A	N/A

Table 3: External battery cabinet compatibility reference

Battery cabinets with chargers							
Cabinet	**Panel compatibility**	**Battery**					
		2081-9275 18 Ah*	2081-9287 18 Ah*	2081-9271 Rectangular 33 Ah	2081-9276 Square 33 Ah	2081-9296 Square 50 Ah	2081-9279 110 Ah
4081-9301	4004R and 4010	Yes	Yes	Yes	Yes	Yes	N/A
4081-9302							
4081-9306	4100ES, 4010ES and 4100U	N/A	N/A	N/A	N/A	Yes	Yes
4081-9308							

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

** 25 AH capacity is effective as of 7/2005

Yes = Compatible with included FACU cabinet

External battery cabinet specification reference

Table 4: Battery cabinets without chargers, shallow design with front door

Model	Color	Listings	Description		Dimensions
2081-9281	Beige	UL and CSFM	2-Unit, 4100 style cabinet without charger; with locking solid door and battery shelf, primarily for use with 50 Ah batteries		25.75 in. W x 20.75 in. H x 6.75 in. D (654 mm x 527 mm x 171 mm)
2081-9282	Red	UL			
4003-9860*	Beige	FM	For use with 4003EC systems, for batteries up to 33 Ah (refer to 4003EC data sheet S4003-0002)		9.5 in. H x 24 in. W x 9 in. D (241 mm x 610 mm x 229 mm)
4009-9801*	Beige	UL, ULC, and FM	For batteries up to 33 Ah	External battery cabinet without charger, with locking solid door and battery harness; for close-nippled mounting to FACU cabinet	16.25 in. W x 13.5 in. H x 5.75 in. D (413 mm x 343 mm x 146 mm)*
* Depth increased for 2081-9276 square 33 Ah batteries effective 7/2005.					

Table 5: Battery cabinet without charger, deep design with hinged lid

Model	Color	Listings	Description	Dimensions
2081-9270	Red	UL	Battery cabinet without charger; cabinet has vented front, and hinged lid with support rod and lock on top	26.5 in. W x 12 in. H x 12 in. D (673 mm x 305 mm x 305 mm)

Table 6: Chargers for use with 4010 FACUs and 4004R suppression release systems, refer to data sheet S4081-0001

Model	Color	Listings	Input voltage	Description	Dimensions
4081-9301	Beige	UL and FM	120 VAC	Battery cabinet with charger for the 4010 and 4004R FACU, for batteries up to 50 Ah, with front door	22.5 in. W x 16.75 in. H x 8.38 in. D (572 mm x 425 mm x 213 mm)
4081-9302	Red				

Table 7: Battery cabinet without charger for 110 Ah batteries, for use with compatible FACU mounted chargers, refer to data sheet S2081-0012

Model and listing	Color	Listings	Cabinet description	Compatible chargers	Charger description	Dimensions
2081-9280	Red	UL, ULC, CSFM	Battery cabinet without charger for 2081-9279, 110 Ah batteries. Includes 80 A battery fuse, terminals and battery connection cables. See data sheet for details.	4100-9xxx Series	4100ES/4100U Power Supplies for Master Controller/CPU Bays	26.5 in. W x 12 in. H x 12 in. D (673 mm x 305 mm x 305 mm)
				4100-5401	4100ES Additional ES Power Supply (ES-PS)	
				4100-5111 4100-5113	4100ES/4100U Additional SPS	
				4100-5311 4100-5313	4100ES Additional EPS+	
				4100-5325 4100-5327	4100ES Additional EPS	
				4100-5125 4100-5127	4100ES/4100U Remote Power Supply (RPS)	
				4100-5120 4100-5122	4100ES/4100U TrueAlert Addressable Power Supply (TPS)	
				4100-0104 4100-0114 4100-0124	4100 legacy power supplies	

Table 8: Battery cabinet with charger for 110 Ah batteries, for use with compatible FACU mounted chargers, refer to data sheet S2081-0012

Model	Color	Listings	Input voltage	Description	Dimensions
4081-9306	Red	UL, ULC, FM, MEA (NYC)	120 VAC	Battery cabinet with charger for batteries up to 110 Ah	27.88 in. W x 13.5 in. H x 14.63 in. D (708 mm x 343 mm x 371 mm)
4081-9308	Red	UL, ULC, FM	220/230/240 VAC, multi-tapped		
4100-9837	Green LED Power-on Indicator Kit, required for ULC listing, mounts above access panel using knockout provided				

Simplex®

True*Alarm* Analog Sensing

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

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

Features

TrueAlarm analog sensing provides:

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

For use with the following Simplex® products:

- 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, Universal Transponders, and 2120 TrueAlarm CDTs equipped for MAPNET II operation

Fire alarm control panel provides:

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

Photoelectric smoke sensors provide:

- Seven levels of sensitivity from 0.2% to 3.7% (refer to additional information on page 3)

Heat sensors provide:

- 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

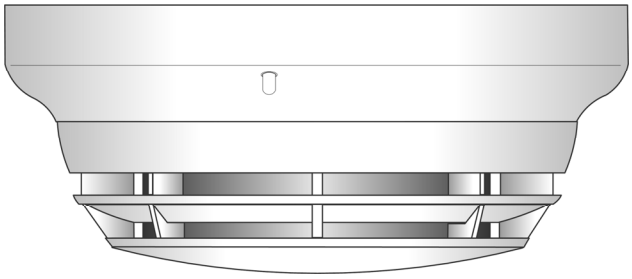
General features:

- Operation is for ceiling or wall mounting
- Listed to UL 268 and ULC-S529
- 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
- Different bases are available to support a supervised or unsupervised output relay, and/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)

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listings 7272-0026:218, 7271-0026:231, 7270-0026:216, and 7300-0026:217 for allowable values and/or conditions concerning material presented in this document. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable, contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.



4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

Description

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

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

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

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

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

True*Alarm* Sensor Bases and Accessories

Sensor Base Features

Base mounted address selection:

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

General features:

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

Sensor Bases

4098-9792, Standard Sensor Base

4098-9789, Sensor Base with wired connections for:

- 2098-9808 Remote LED alarm indicator **or** 4098-9822 relay (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 panel
- 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 @ 28 VDC; non-power limited rating of 3 A @ 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 @ 30 VDC, resistive; non-power limited rating of 0.5 A @ 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 @ 28 VDC; non-power limited rating of 1/2 A @ 120 VAC, (requires external 24 VDC coil power)

4098-9832, Adapter plate:

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

2098-9808, Remote red LED Alarm Indicator:

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

Description

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

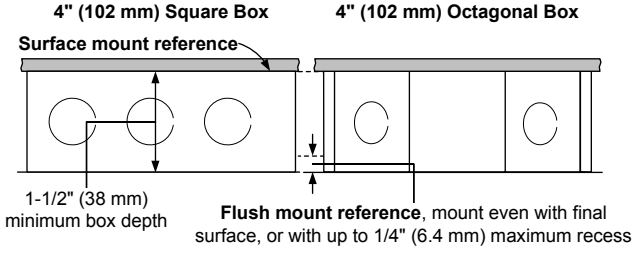
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing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

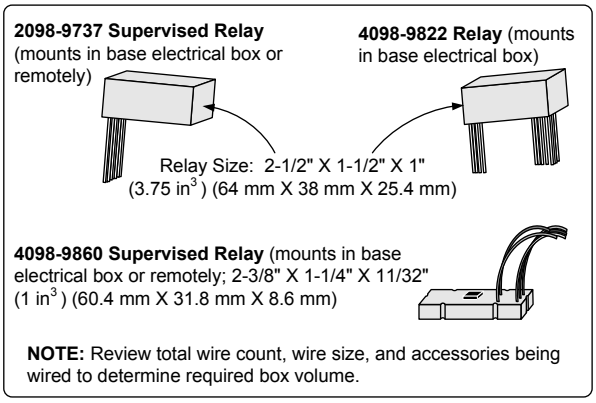
Mounting Reference

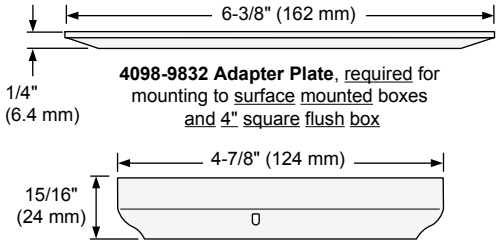
Electrical Box Requirements: (boxes are by others)

Without relay 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







TrueAlarm Bases
4098-9780, 4098-9789, 4098-9791, & 4098-9792

True*Alarm* Sensors

Features

Sealed against rear air flow entry

Interchangeable mounting

EMI/RFI shielded electronics

Heat sensors:

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

Fixed Temp. Setting	UL & ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F / 190° F* (57.2° C / 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.

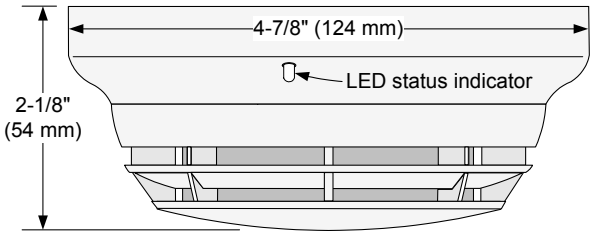
Smoke Sensors:

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

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed 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 response to smoke from any direction. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.



4098-9714 Photoelectric Sensor with Base

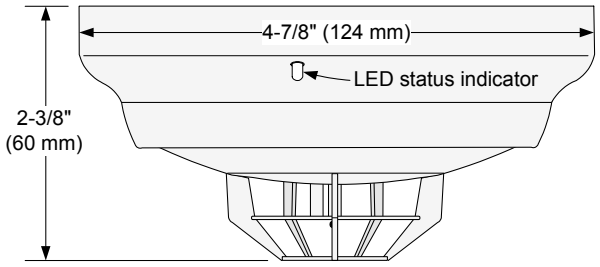
4098-9733 and 4098-9734 Heat Sensors

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.

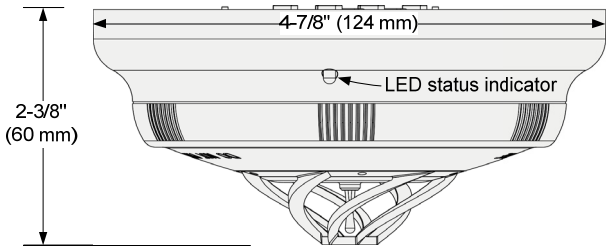
Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). The 4098-9734 sensor provides an additional 190° F (88° C) set point.

In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

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



4098-9733 Heat Sensor with Base



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, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide.*

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

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sensor Bases (for use with Sensors 4098-9714 and 4098-9733)

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

Model*	Color	Description	Compatibility	Mounting Requirements
4098-9792	White	Standard Sensor Base	No options	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" min. depth
4098-9776	Black			
4098-9789	White	Sensor Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	2098-9808 Remote Alarm Indicator **or** 4098-9822 Unsupervised Relay	4" octagonal or 4" square box **Note:** Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference. ** **NOTE:** 4098-9791 and 4098-9780 are NOT compatible with the 2120 CDT
4098-9789 IND	White			
4098-9775	Black			
4098-9791**	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**	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	

TrueAlarm Sensors

Model*	Model*	Description	Compatibility	Mounting Requirements
4098-9714	White	Photoelectric Smoke Sensor	Bases 4098-9775, 4098-9776, 4098-9792, 4098-9789, 4098-9791, and 4098-9780	Refer to base requirements
4098-9714 IND				
4098-9774	Black			
4098-9733	White	Heat Sensor		
4098-9734	White	High Temperature Heat Sensor		

TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4" octagonal or 4" square box, 1-1/2" minimum depth **Base Mounting** requires 4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9860	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9780 base	
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" 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" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, 4098-9789, 4098-9791, and 4098-9780	**Required** for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

* **Note:** Model numbers ending in IND are assembled in India.

Specifications

General Operating Specifications

Communications and Sensor Supervisory Power		IDNet or MAPNET II communications, auto-selected, 1 address per base
Communications Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator Current		1 mA typical, no impact to alarm current
Remote LED Alarm Indicator and Relay Connections		Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Operating Temperature Range		32° to 100° F (0° to 38° C)
Operating Temperature Range	with 4098-9733 Heat Sensor	32° to 122° F (0° to 50° C)
	with 4098-9714 Smoke Sensor	15° to 122° F (-9° to 50° C)
	With 4098-9734 Heat Sensor	32° to 150° F (0° 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		0-4000 ft/min (0-1220 m/min)
Housing Color		Frost White or Black
4098-9791 Base With Supervised Remote Relay 2098-9737 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		270 μA, from 24 VDC supply
Alarm Current with 2098-9737 Relay		28 mA, from 24 VDC supply
4098-9780 Base With Supervised Remote Relay 4098-9860 (see page 2 for contact ratings)		
Power		Supplied from communications
4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789. 4098-9791, and 4098-9780 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		Supplied from communications
Alarm Current		13 mA from separate 24 VDC supply

Simplex®

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)

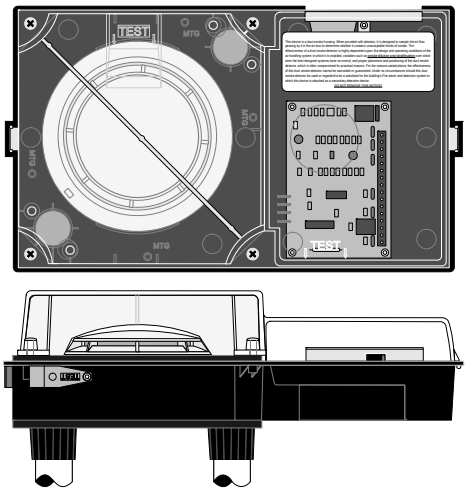
Sampling tubes (ordered separately):

- 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

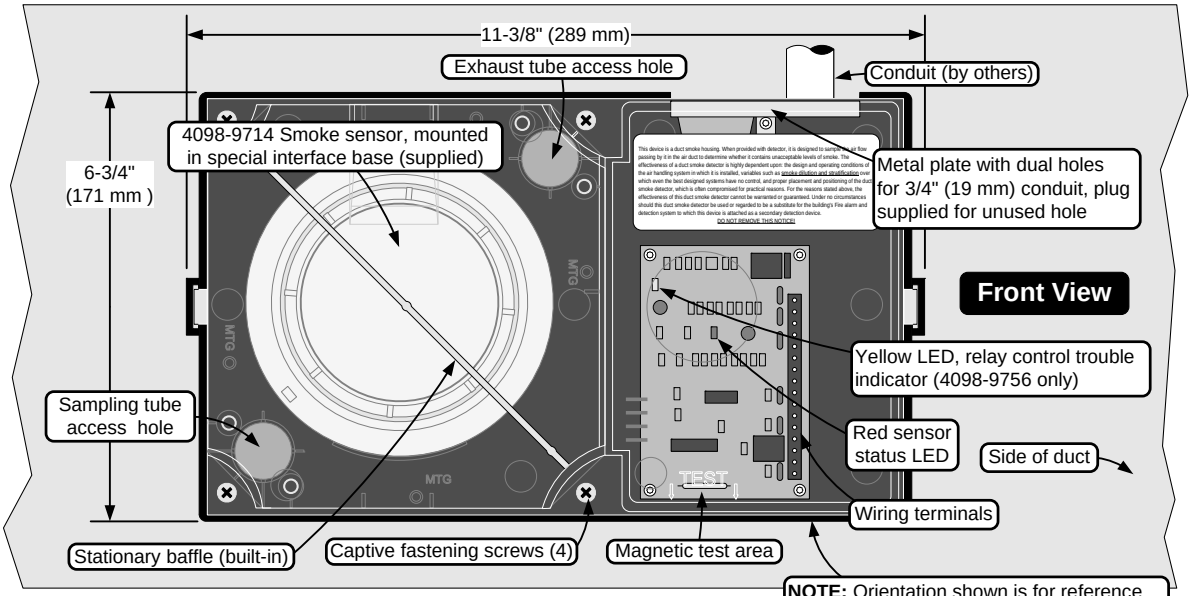
* Each duct housing includes an internally mounted model 4098-9714 TrueAlarm photoelectric sensor and an exhaust tube. A correctly sized sampling tube (ordered per application) is required, refer to chart below.

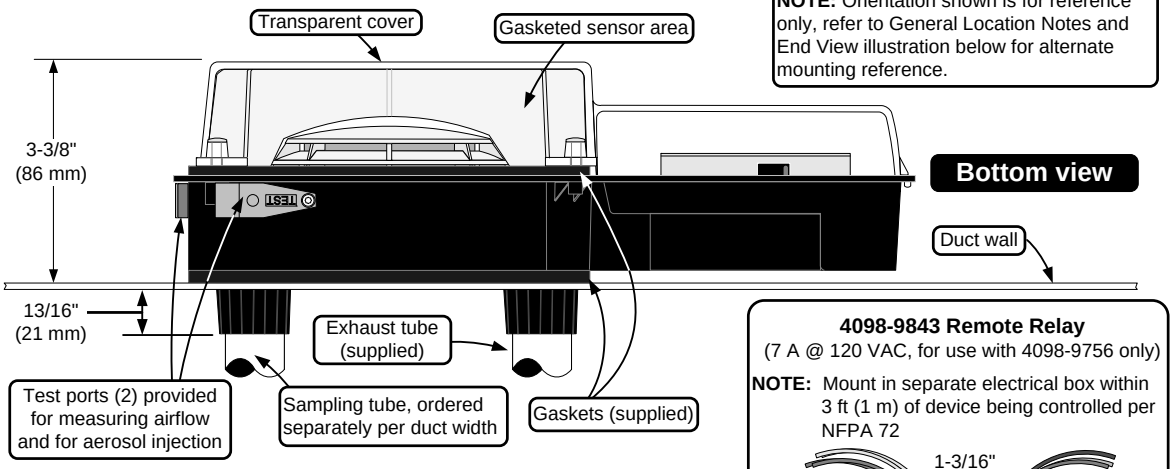
Sampling Tube Selection Chart, Ordered Separately Per Duct Width, Select One

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

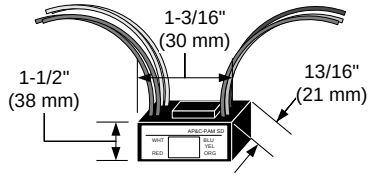
NOTE: Refer to Installation Instructions 574-776 for additional installation detail and maintenance information.

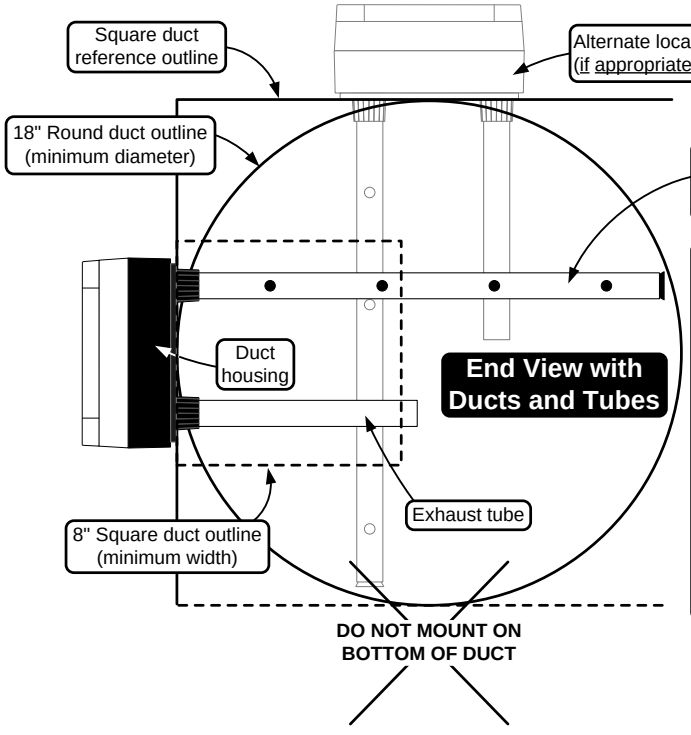




4098-9843 Remote Relay
(7 A @ 120 VAC, for use with 4098-9756 only)

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

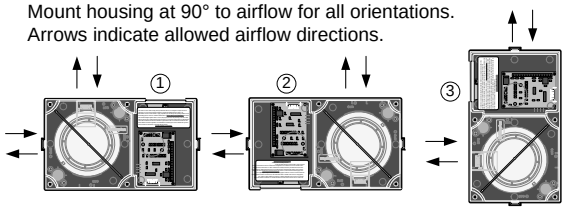




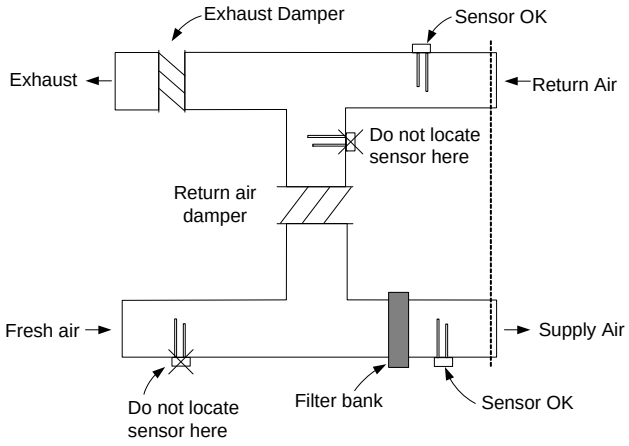
Sampling tube, keyed for proper hole alignment **with holes facing into airflow** (template is provided for proper tube installation). (Housing is shown as position 2 per note 2 below.)

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.



Duct Sensor Location Reference



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

Multi-Application Peripherals

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

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

Features

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

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

For use with following Simplex control panels:

- Model Series 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:

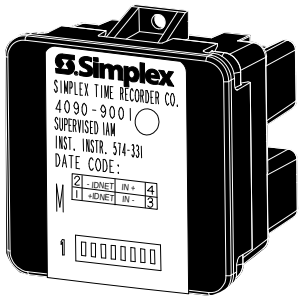
- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

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

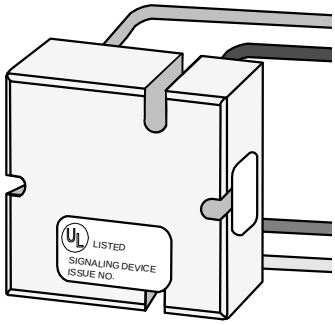
- Contact closure status can be tracked
- Momentary contact closure conditions can be selected at the panel to be latched or tracked (not available with the 2120 CDT)

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 4090-9151
	Field Wiring Diagrams	842-073 for IDNet operation; 841-804 for MAPNET II operation

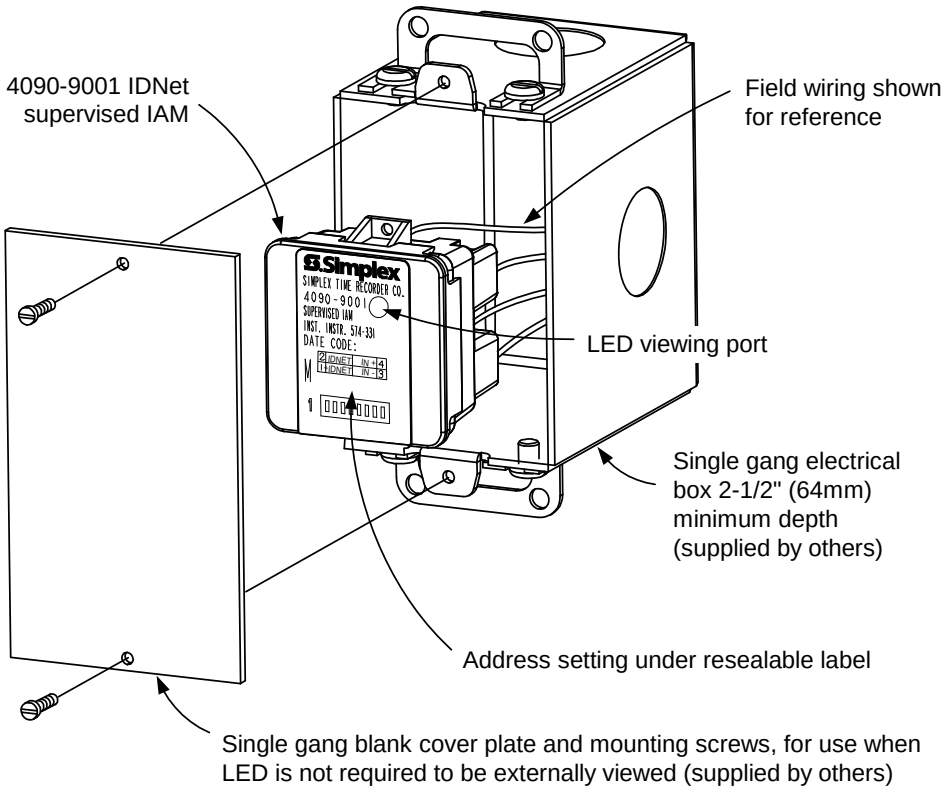
Wiring Distances

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

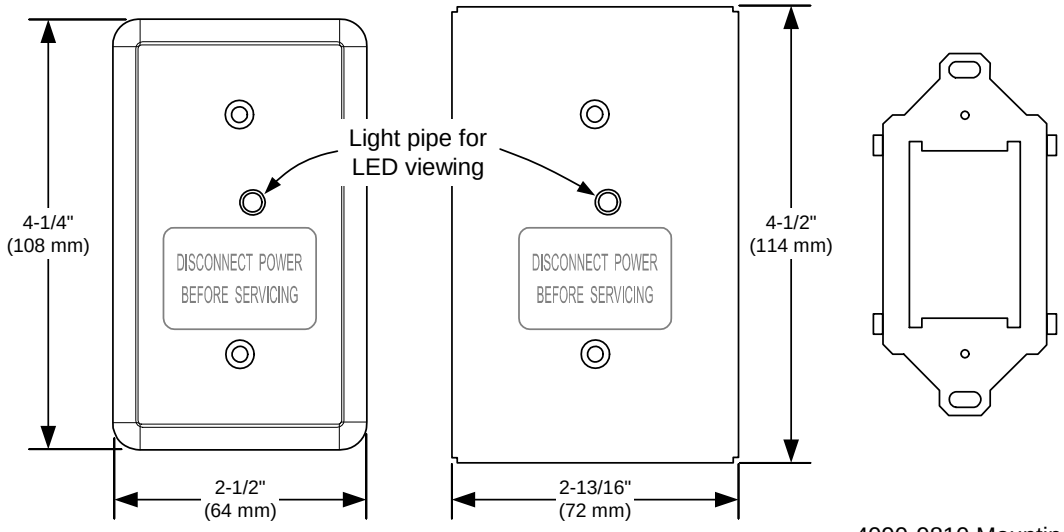
Mechanical

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

Mounting Information



Mounting Reference, Single Gang Blank Cover Plate



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

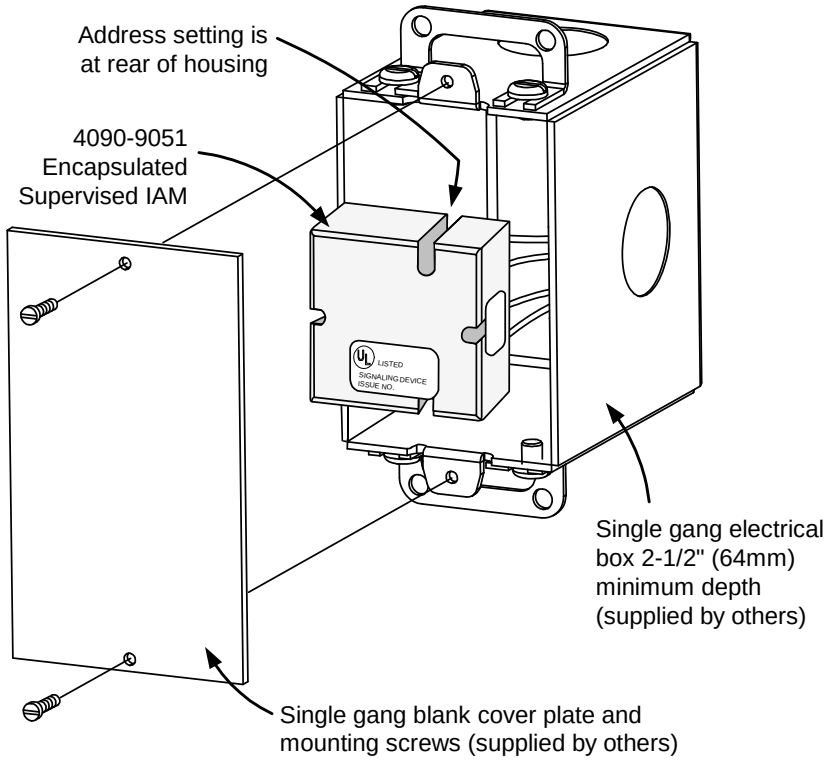
4090-9807, Trim plate for surface mounted box

4090-9810 Mounting bracket, ordered separately

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

Optional Trim Plates and Mounting Bracket for Visible LED

4090-9051 Mounting Information



Simplex

True*Alert* Multi-Candela Notification Appliances

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

Visible Notification Appliances with Speaker and Multi-Candela Strobe; Non-Addressable

Features

Speaker/visible (S/V) notification appliances with multi-tapped speaker and multi-tapped high intensity xenon strobe with synchronized flash:

- Rugged, high impact, flame retardant thermoplastic housings are available for wall or ceiling mount
- Operation is compatible with ADA requirements (refer to important wall mount installation information on page 4)

Wall mount S/V features:

- Housings are available in red or white with clear lens with contrasting white or red "FIRE" lettering
- Covers are available separately to convert housing color

Ceiling mount S/V features:

- Housing is white with clear lens
- Red "FIRE" lettering is printed on two sides

Audible notification appliance (speaker):

- High quality voice and tone reproduction with taps for ¼, ½ , 1, or 2 W, at 25 or 70.7 VRMS
- Capacitor input for connection to supervised notification appliance circuits
- Speakers are wired separately from strobe wiring
- UL listed to Standard 1480 and ULC-S541*
- Compliant with NFPA 72, 520 Hz Low Frequency Signal Requirements for Sleeping Areas

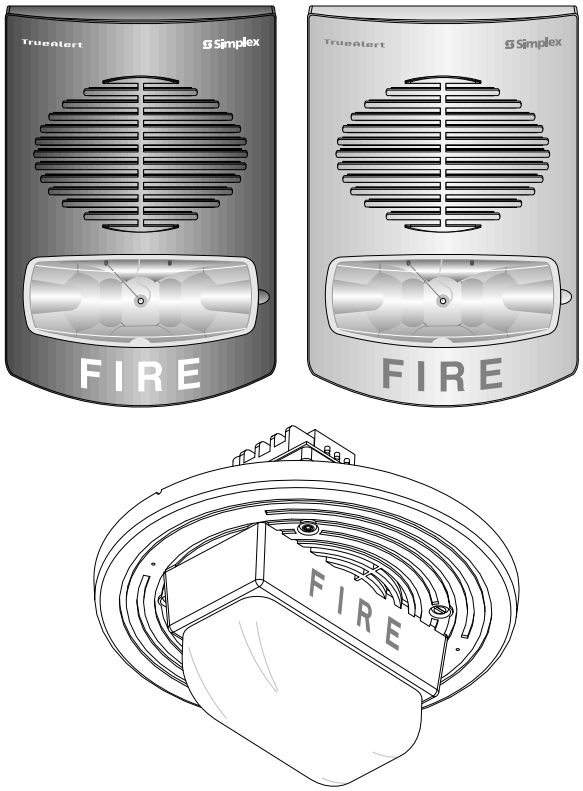
Visible notification appliance (strobe):

- 24 VDC xenon strobe; intensity is selectable as 15, 30, 75, or 110 candela with visible selection jumper secured behind strobe housing
- Strobes are activated from NACs selected to provide Simplex® strobe synchronization signals or from separate strobe Synchronization Modules that are available for Class B or Class A operation
- Regulated circuit design ensures consistent flash output and provides controlled inrush current
- UL listed to Standard 1971 and ULC-S526*

Options for wall mounted S/Vs:

- Red or white adapters to cover surface mounted electrical boxes
- Red adapter for mounting to Simplex 2975-9145 boxes
- Red wire guard

* See page 2 for additional listing details and wire guard listings. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7320-0026:247 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.



Wall and Ceiling Mount S/Vs

Description

Multi-Candela TrueAlert S/Vs with speaker and synchronized strobe provide convenient installation to standard electrical boxes with extensions. 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 S/V housings are a one-piece assembly (including lens) that mounts to a 4" square electrical box with extension (see details on page 4). The cover can be quickly removed (a tool is required) and covers are available separately for color conversion.

Ceiling mount S/Vs also install using 4" electrical boxes with an extension (see details on page 4).

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.

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 S/Vs are activated by NACs that provide the Simplex synchronization format. For additional information, refer to data sheet S4905-0003.

Strobe Application Selection

Proper selection of visible notification is dependent on occupancy, location, local codes, and proper 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).

Product Selection

Wall Mount Multi-Candela S/Vs

Model	Housing Color	"FIRE" Lettering	Listings	Description	Housing Dimensions with Lens
4906-9151	Red	White	UL & ULC	Multi-tapped Speaker with Multi-Candela Synchronized Strobe; strobe intensity selectable as: 15, 30, 75, or 110 candela	7 ¼" H x 5" W x 2 ⅝" D (184 mm x 127 mm x 67 mm)
4906-9153	White	Red			

Ceiling Mount Multi-Candela S/V

Model	Housing Color	"FIRE" Lettering	Listings	Description	Dimensions
4906-9154	White	Red	UL	Multi-tapped Speaker with Multi-Candela Synchronized Strobe; strobe intensity selectable as: 15, 30, 75, or 110 candela	Housing = 7 ½" (191 mm) diameter, ½" (13 mm) deep Strobe lens protrusion = 2 ⅝" (67 mm) above speaker housing Depth into box = 2 ¾" (70 mm)
4906-9157	White	Red	ULC		

Wall Mount S/V Adapters

Model	Description		Dimensions
4905-9946	Surface mount red adapter skirt	Required when mounting to surface mounted electrical box, 4" square, 1 ½" deep with 1 ½" deep extension	7 ¾" H x 5 ⅜" W x 3 $^{3}/_{16}$" D (197 mm x 137 mm x 81 mm) depth with S/V = 5 ⅞" (149 mm)
4905-9947	Surface mount white adapter skirt		
4905-9903	Adapter Plate, red, required to mount S/V on 2975-9145		8 $^{5}/_{16}$" H x 5 ¾" W x 0.060" Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Mounting box, red, for surface or flush mount, requires adapter plate 4905-9903 (this box may be available for retrofit applications)		7 ⅞" H x 5 ⅛" W x 2 ¾" D (200 mm x 130 mm x 70 mm)

Wall Mount S/V Replacement Covers

Model	Description	Dimensions
4905-9996	Red S/V cover with white "FIRE" lettering	7 ¼" H x 5" W x 1 ⅜" D (184 mm x 127 mm x 35 mm)
4905-9997	White S/V cover with red "FIRE" lettering	

Synchronized Flash Control Modules

Model	Description		Dimensions
4905-9914*	Synchronized Flash Module, Class B operation	Epoxy encapsulated with in/out 18 AWG (0.82 mm^2) wire leads, rated for 2 A NAC, requires 5 mA for power	1 ⅜" W x 2 $^{7}/_{16}$" L x $^{13}/_{16}$" H (35 mm x 62 mm x 20 mm)
4905-9922*	Synchronized Flash Module, Class A operation		

Wall Mount S/V Wire Guard

Model	Description	Dimensions
4905-9998	Wire guard with mounting plate, red, compatible with surface and semi-flush boxes (UL listed by Space Age Electronics Inc.)	8 ⅜" H x 6 $^{5}/_{16}$" W x 3 ¼" D (213 mm x 154 mm x 79 mm)

Ceiling Mount Tile Bridge

Model	Description	Dimensions
2905-9946	Tile Bridge	See diagram on page 4

* Refer to data sheet S4905-0003 for additional flash control module information

S/V Specifications

Common Specifications	Environmental	32° to 122° F (0° to 50° C); 10% to 93%, non-condensing at 100° F (38° C)
	Connections	Terminal blocks for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires per terminal for in/out wiring

Speaker Specifications

Input Voltage		25 or 70.7 VRMS, see Note 1 below
Power Taps		¼, ½, 1, and 2 W
Frequency Response	Fire Alarm	400 to 4000 Hz
	General Signaling	125 to 12 kHz

Speaker Output Ratings @ 10 ft (3 m) (see Note 1 below)		Wattage Tap	**¼ W**	**½ W**	**1 W**	**2 W**
	UL Listed Models, Reverberant Chamber Test, per UL 1480		76 dBA	79 dBA	82 dBA	85 dBA
	Wall Mount Models **4906-9151** and **4906-9153**, Anechoic Chamber Test, per ULC-S541		77 dBA	80 dBA	83 dBA	86 dBA*
	Ceiling Mount Model **4906-9157**, per ULC-S541	25 VRMS Input	81.6 dBA	84.3 dBA	87.1 dBA*	89.7 dBA*
		70.7 VRMS Input	80.9 dBA	84.1 dBA	87.3 dBA*	90.2 dBA*

* **NOTE:** Select taps as indicated to satisfy the ULC fire alarm applications requirement of 85 dBA minimum

	Attenuation	**Angle**	**Attenuation**	**Angle**
Polar Dispersion Reference (per ULC-S541 Anechoic Chamber Testing)	-3 dB	+/- 30° off-axis	-6 dB	+/- 55° off-axis

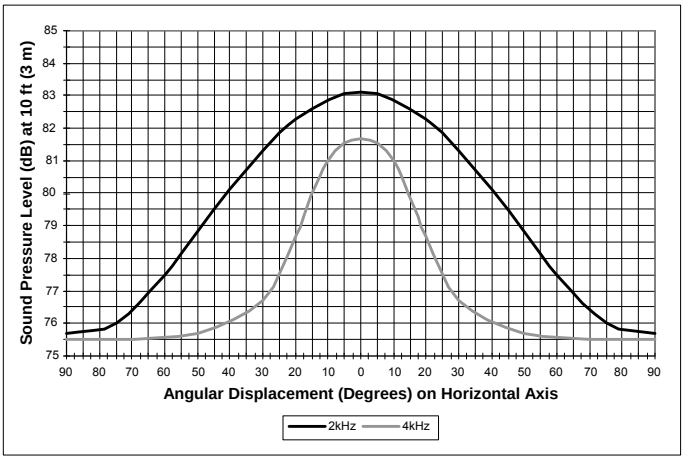
Strobe Specifications

Rated Voltage Range			Regulated 24 VDC; 16 VDC to 33 VDC, see Note 2 below			
Flash Rate and Synchronized NAC Loading			1 Hz; with up to 35 synchronized strobes maximum per NAC			
Wall Mount	Housing Dimensions (with lens)		7 ¼" H x 5" W x 2 ⅝" D (184 mm x 127 mm x 67 mm)			
	Maximum RMS Current Rating per Strobe Setting		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			60 mA	**94 mA**	**186 mA**	**252 mA**
	Reference RMS Currents at other voltages	18 VDC	53 mA	84 mA	165 mA	224 mA
		24 VDC	40 mA	63 mA	124 mA	168 mA
Ceiling Mount	Housing Dimensions		Speaker housing = 7 ½" (191 mm) diameter, ½" deep (13 mm); lens protrusion above speaker housing = 2 ⅝" (67 mm); depth into box = 2 ¾" (70 mm)			
	Maximum RMS Current Rating per Strobe Setting		**15 cd**	**30 cd**	**75 cd**	**110 cd**
			75 mA	**125 mA**	**233 mA**	**316 mA**
	Reference RMS Currents at other voltages	18 VDC	67 mA	111 mA	207 mA	281 mA
		24 VDC	50 mA	83 mA	155 mA	211 mA

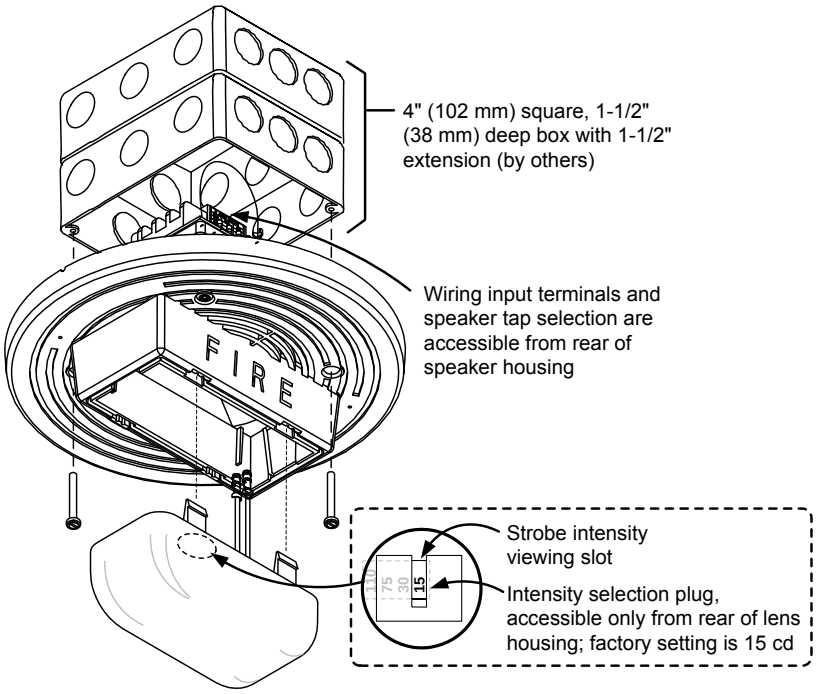
NOTES:

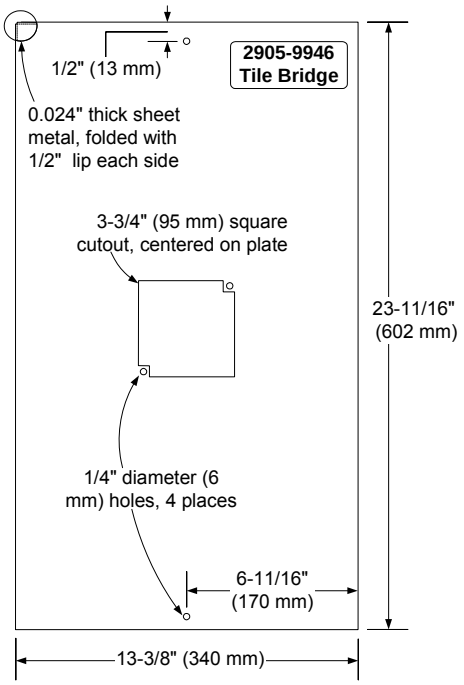
1. Speakers are for connection to conventional fire alarm audio circuits. Anechoic speaker output ratings are typically more representative of actual installed sound output.
2. The maximum RMS strobe current listed is the device nameplate rating. Strobe designs are constant wattage and the maximum RMS 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.)

Speaker Directional Characteristics Reference

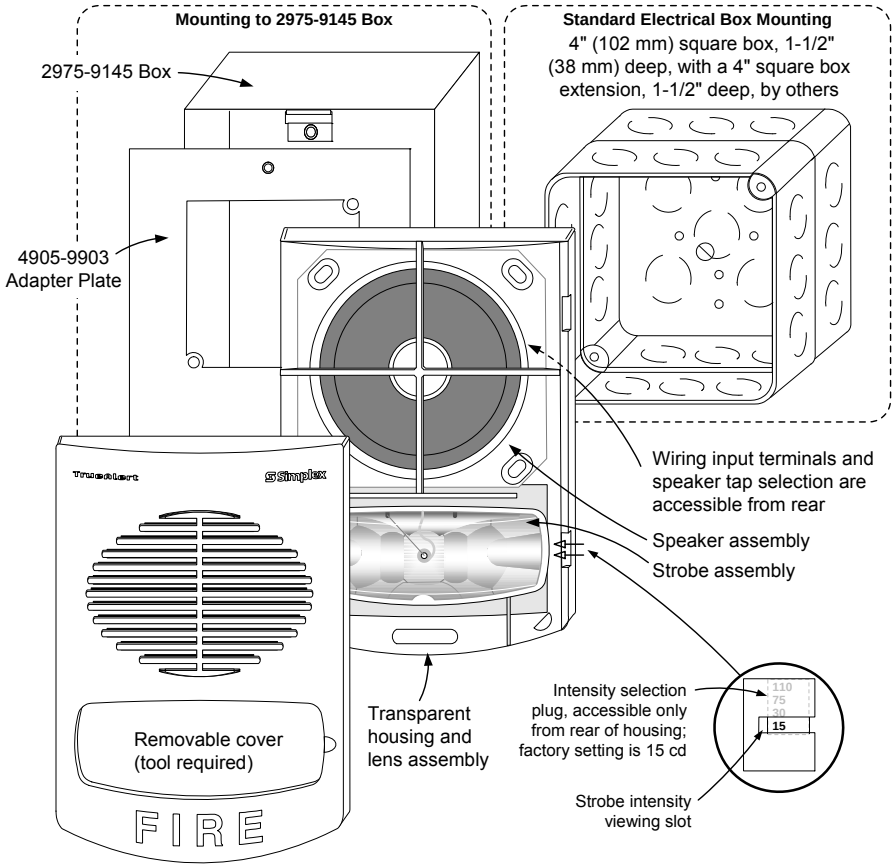


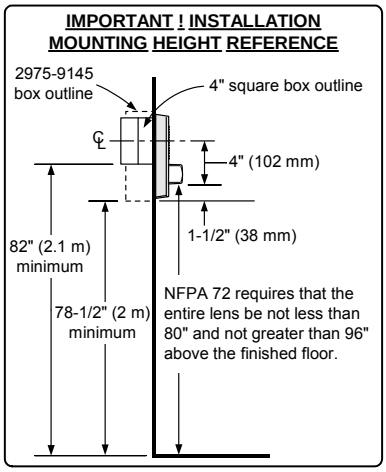
Ceiling Mount S/V Installation Reference and Tile Bridge Dimensions

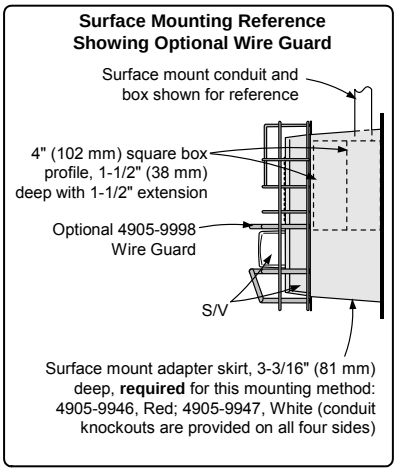




Wall Mount Installation Reference







Simplex®

Multi-Application Peripherals

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

Audible Notification Appliances
Speakers, 25 or 70.7 VRMS, Wall or Ceiling Mount

Features

Fire alarm speakers with models for ceiling or wall mount:

- Four inch cone (102 mm) provides high quality tone and voice reproduction
- Multi-tapped design provides output power of ¼, ½, 1, or 2 W with either 25 or 70.7 VRMS input
- In/out wiring terminals for 18 AWG to 12 AWG
- Mounts to 4" square outlet box, 1 ½" deep with 1 ½" deep box extension
- Capacitor input for connection to supervised notification appliance circuits
- Rugged, high impact, flame retardant thermoplastic housings
- UL listed to Standard 1480
- ULC listed to Standard S541, refer to page 4 for required minimum wattage tap per housing type
- Compliant with NFPA 72, 520 Hz Low Frequency Signal Requirements for Sleeping Areas

Rectangular housing models feature:

- Appearance that complements TrueAlert strobes and speaker/strobes
- Red or white housings with "FIRE" lettering for surface or semi-flush wall mount
- Optional matching adapter skirts for covering surface mounted electrical boxes*
- Optional red wire guard

Round housing models feature:

- Off-white color (no lettering) for flush mount on ceiling or wall
- Compatible with optional tile bridge 2905-9946

Introduction

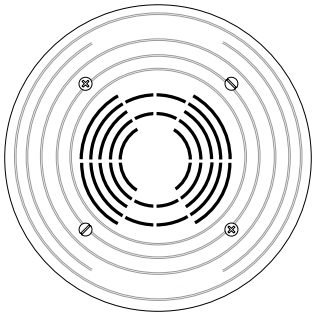
Simplex® 4902 Series speakers provide high quality sound for emergency fire alarm use as well as for background music. The moisture-repellent speaker is designed for smooth frequency response with minimal distortion.

The multi-tapped speaker transformer accommodates either 25 or 70.7 VRMS and provides an output of from ¼ to 2 W to provide flexibility for satisfying the requirements of the installed conditions.

Rectangular housing models are for surface or semi-flush wall mount applications. Round housing models are typically for ceiling applications but can be wall mounted if desired. The rectangular housing speakers are designed to compliment the TrueAlert family of strobes and speaker/strobes, providing conventional, non-addressable speaker operation.

* Refer to page 2 for guard and adapter skirt listing. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7320-0026:242 for allowable values and/or conditions concerning material presented in this document. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Rectangular Wall Mount Speakers are Available as Red with White "Fire" Lettering and White with Red "Fire" Lettering



Round Speakers are Available in Off-White (no lettering)

Specifications

Dimensions, Rectangular Wall Mount Housings		
Housing Dimensions		5 ⅛" H x 5" W x 1 ½" D (130 mm x 127 mm x 38 mm)
Depth into Box		2 ¾" (70 mm)
Dimensions, Round Housings		
Housing Dimensions		7 ½" Diameter, ½" D (191 mm x 13 mm)
Depth into Box		2 ¾" (70 mm)
General Specifications		
Input Voltage		25 or 70.7 VRMS
Power Taps		¼, ½, 1, and 2 W
Input Terminal Ratings		18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Frequency Response	Fire Alarm	400 to 4000 Hz
	General Signaling	125 to 12 kHz
Sound Output		See information on page 4
Temperature Range		32° to 100° F (0° to 38° C)
Humidity Range		10% to 95% RH from 32° to 122° F (0° to 50° C)

Product Selection

Speakers

Model*	Description		Dimensions
4902-9716 (CA)	Rectangular housing, wall mount speaker	Red with white “FIRE” lettering	5 ⅛” H x 5” W x 1 ½” D (130 mm x 127 mm x 38 mm)
4902-9717 (CA)		White with red “FIRE” lettering	
4902-9721 (CA)	Round housing speaker, ceiling or wall mount	Off-white (no lettering)	7 ½” Diameter x ½” D (191 mm x 13 mm)

* ULC listed model are designated with a CA suffix (4902-9716CA). Refer to Installation Instructions 574-765 for non-suffix model numbers and to Installation Instructions 579-324 for CA suffix model numbers.

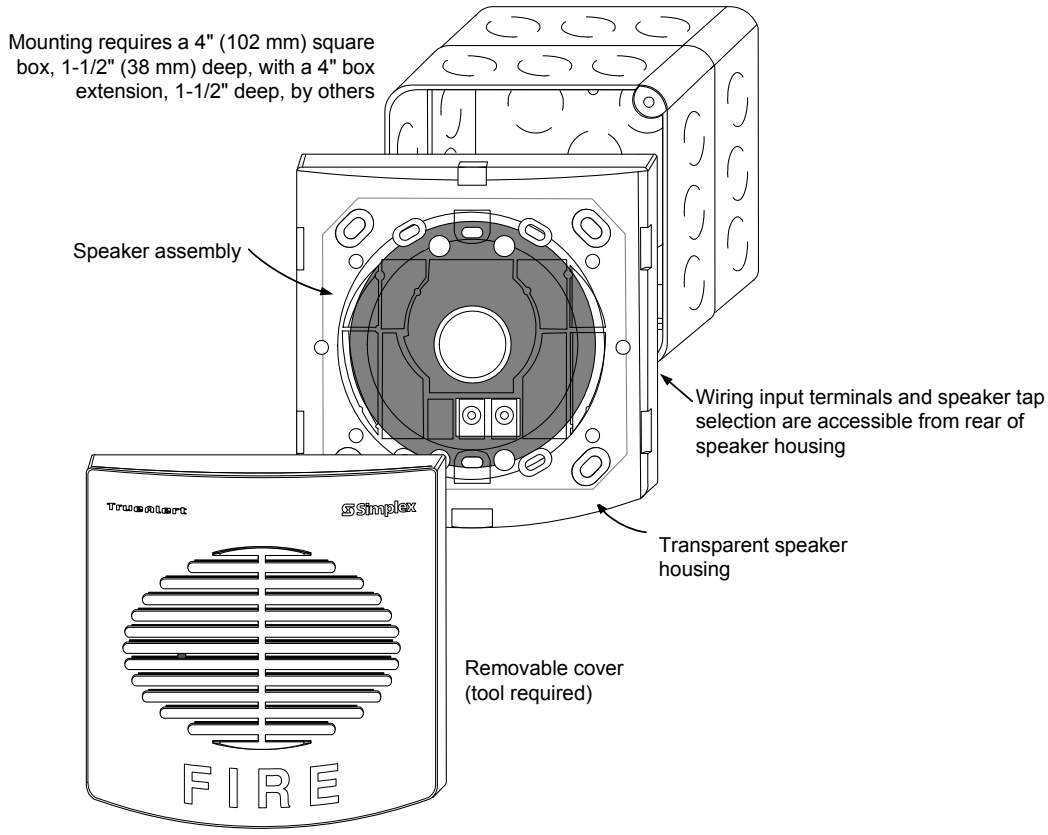
Mounting Adapters

Model	Description			Dimensions
4905-9941	Red	Surface mount adapter skirt; (*not ULC listed*)	Use to cover surface mounted 1-1/2” deep box with 1-1/2” deep extension external to wall (see diagram on page 3)	5 ⅜” H x 5 ¼” W x 3 $^{3}/_{16}$” D (136 mm x 133 mm x 81 mm) Total surface depth with speaker = 4 ⅝” (117 mm)
4905-9942	White			
2905-9946	Tile bridge for 4902-9721 Speaker			See diagram on page 3
4905-9931	Adapter Plate, red, for mounting to 2975-9145 box (typically for retrofit, may be mounted vertical or horizontal)			8 $^{5}/_{16}$” x 5 ¾” x 0.060” Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Red mounting box, requires Adapter Plate 4905-9931			7 ⅞" x 5 ⅛" x 2 ¾" D (200 mm x 130 mm x 70 mm)

Covers and Guard

Model	Description		Dimensions
4905-9988	Red speaker cover with white “FIRE” lettering	Interchangeable with TrueAlert horns	5 ⅛” H x 5” W x 1 ½” D (130 mm x 127 mm x 38 mm)
4905-9989	White speaker cover with red “FIRE” lettering		
4905-9999	Red wire guard with mounting plate; compatible with semi-flush or surface mounted boxes; for use with 4” square electrical box mounting hole patterns only (UL listed by Space Age Electronics Inc.)		6 $^{1}/_{16}$” H x 6 $^{1}/_{16}$” W x 3 ⅛” D (154 mm x 154 mm x 79 mm)

Wall Mount Speakers, Installation Reference



Eluxa outdoor 3R/4X Speaker and Speaker Strobe

EL3RSPK/EL4XSPK Speaker, EL3RSPST/EL4XSPST Speaker Strobe (Clear or amber lens)

The Wheelock Eluxa weatherproof series EL3RSPK/EL4XSPK speaker and EL3RSPST/EL4XSPST speaker-strobe appliances are designed for easy installation with a pre-wire capable EL3RBB mounting plate, or EL4XBB back box. All Eluxa weatherproof models are for indoor/outdoor use and wall or ceiling mount. The EL3RSPK/EL4XSPK and EL3RSPST/EL4XSPST Series Multi-Candela Speaker Strobes are designed for multiple power requirements with high dBA output at each power tap. The design incorporates a high efficiency speaker for maximum output at minimum power across a frequency range of 400-4000Hz.

Rugged

The cutting-edge solution delivers optimal performance thanks to its NEMA type 3R and 4X ratings, which make it resistant to corrosion and ice formation. The IP54 and IP66 ratings provide superior protection against dust and water, making it ideal for areas of high humidity, extreme heat, or severe cold.

Energy Efficient

With six candela settings in a single device, Eluxa features one of the industry's lowest current draws across the full candela range. The Eluxa outdoor product line reduces overall power consumption, allowing for more appliances on each circuit (NAC) and fewer power supplies.

Compliance and Approvals

- Certified to NEMA type 3R | 4X
- IP54 |IP66 Certified |Tested to IP67
- NFPA 72 2016 (Meets maximum light pulse duration of 20 ms)
- IEC 60529 2nd edition + amendment 3- August 2013
- FCC Part 15B / ICES-003- Class A
- UL 50 13th edition- October 2020
- UL 50E 3rd edition- October 2020
- UL464 11th edition: CAN/ULC 525 5th edition- May 2023
- UL1480 7th edition: CAN/ULC 541 5th edition- May 2023
- UL1638 6th edition: CAN/ULC 526 5th edition- April 2023
- California State Fire Marshal (CSFM) - pending
- Factory Mutual (FM) - pending
- ADA/NFPA/ANSI/OSHA

Complete and Compliant

The Wheelock Eluxa 3R/4X series meets NFPA 2016 20 millisecond light pulse duration code requirements. In addition, the Wheelock Eluxa and LED3 product lines have been UL/ULC listed as compatible with all Fire Alarm Control Panels (FACP) and accessories that have been determined to be compatible with Wheelock model RSS Strobe based products including the RSS, CH, E, EH, ET, ST, HS, MT, S8, SA, STH and Z Series. The maximum number of Eluxa devices per NAC is determined by dividing the maximum current rating of the FACP NAC by the total current rating of one Eluxa device, with a maximum of 105 Eluxa (or LED3) devices per NAC. Refer to FACP installation instructions for more detail. The Wheelock Eluxa Series and Exceder LED3 Series strobes may be installed in the same notification zone and field of view with any RSS Strobe based product.

Powering Business Worldwide

Complete and Compliant

Wheelock Eluxa 3R/4X Multi-Candela Strobes can provide a non-synchronized strobe appliance when connected directly to a Fire Alarm Control Panel (FACP), or provide a synchronized strobe appliance when used in conjunction with an FACP that incorporates the Cooper Wheelock sync protocol, a Dual Sync Module (DSM), or the Wheelock Power Supply.

Drawings

Figure 1. Eluxa outdoor 3R

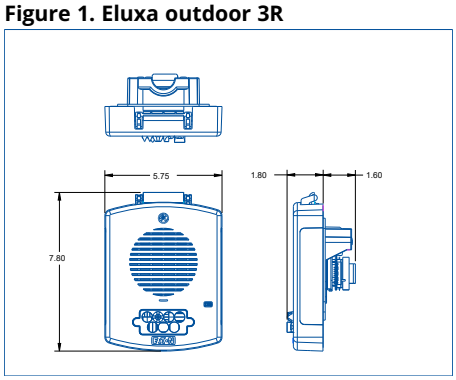


Figure 2. Eluxa outdoor 4X

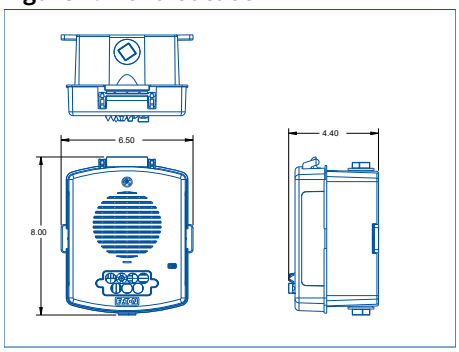


Table 1. EL3RSPK/EL4XSPK Speaker sound pressure level ratings

Setting	Reverberant dBA at 10Ft per UL1480/ULC541						
	1/8	1/4	1/2	1	2	4	8
25Vrms	76	79	82	85	88	---	---
70.7Vrms	76	79	82	85	88	91	94

Table 1A: Directional Characteristics

-3dB	+/- 80 Degrees Horizontal, +/- 80 Degrees Vertical
-6dB	+/- 90 Degrees Horizontal, +/- 90 Degrees Vertical

Table 2. EL3RSPST/EL4XSPST Speaker Strobe Ratings

		UL/ULC Max Current					
		24VDC					
Speaker Strobe (Clear)	**Regulated Voltage Range VDC**	**15**	**30**	**75**	**110**	**150**	**185**
EL3RSPST	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
EL4XSPST	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
	FWR	0.034	0.053	0.098	0.137	0.235	0.308
Speaker Strobe Amber (Amber strobe is certified as Emergency Warning Visual Signal.)		**15**	**30**	**75**	**95**	**150**	**177**
EL3RSPSTA (Amber)	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
EL4XSPSTA (Amber)	16.0-33.0	0.026	0.038	0.070	0.097	0.179	0.206
	FWR	0.034	0.053	0.098	0.137	0.235	0.308

Table 3. Specifications

Physical	
Material	Red or white textured UV stabilized, colored impregnated engineered plastic.
Weight	3R = 1.7 lbs 4X = 2.3
Lens	Light Emitting Diode (LED) in a rugged Lexan lens
Dimensions	3R: 7.8"L x 5.75"W x 1.6"H 4X: 8"L x 6.5"W x 4.5"H
Operating Temperature	Indoor/Outdoor Use. -40° C to 66° C (-40° F to 150° F) 95% R.H.
Mounting & Wire Connections	
Mounting	Wall & Ceiling
Wire Connections	18 to 12 AWG. 2 wire.
Power & General	
Operating voltage	16-33 VDC/FWR.
Strobe Output Rating	Clear 15/30/75/110/150/185 Cd Amber 15/30/75/95/150/177 Cd
Strobe Flash Rate	1 Hz
Synchronization Models	ALL

Table 4. Ordering Information

Model	Strobe Candela	Lens	Red	White	Lettering	Sync w/DSM or Wheelock Power Supplies
Speaker						
EL3RSPK-NR			X		n/a	X
EL3RSPK-NW				X	n/a	X
EL4XSPK-NR			X		n/a	X
EL4XSPK-NW				X	n/a	X
Speaker Strobe						
EL3RSPST-FR	15/30/75/110/150/185	Clear	X		FIRE	X
EL3RSPST-FW	15/30/75/110/150/185	Clear		X	FIRE	X
EL4XSPST-FR	15/30/75/110/150/185	Clear	X		FIRE	X
EL4XSPST-FW	15/30/75/110/150/185	Clear		X	FIRE	X
EL3RSPSTA-NW	15/30/75/95/150/177	Amber		X		X
EL3RSPSTA-ALW	15/30/75/95/150/177	Amber		X	ALERT	X
EL4XSPSTA-NW	15/30/75/95/150/177	Amber		X		X
EL4XSPSTA-ALW	15/30/75/95/150/177	Amber		X	ALERT	X

Table 5. Accessories

Standard Letter Plates	Color	Description
ELLP-FR (10Pk)	Red	ELUXA LETTER PLATE, RED, FIRE (10 PAIR PER PKG. - 1 Pair PER DEVICE)
ELLP-FW (10Pk)	White	ELUXA LETTER PLATE, WHITE, FIRE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-NR (10Pk)	Red	ELUXA LETTER PLATE, RED, NO LETTERING (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-NW (10Pk)	White	ELUXA LETTER PLATE, WHITE, NO LETTERING (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-AR (10Pk)	Red	ELUXA LETTER PLATE, RED, AGENT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-AW (10Pk)	White	ELUXA LETTER PLATE, WHITE, AGENT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-ALR (10Pk)	Red	ELUXA LETTER PLATE, RED, ALERT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-ALW (10Pk)	White	ELUXA LETTER PLATE, WHITE, ALERT (10 PAIR PER PKG. - 1 PAIR PER DEVICE)

Standard Letter Plates	Color	Description
ELLP-COR (10Pk)	Red	ELUXA LETTER PLATE, RED, CARBON DIOXIDE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-COW (10Pk)	White	ELUXA LETTER PLATE, WHITE, CARBON DIOXIDE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-EVR (10Pk)	Red	ELUXA LETTER PLATE, RED, EVACUATE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-EVW (10Pk)	White	ELUXA LETTER PLATE, WHITE, EVACUATE (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-MR (10Pk)	Red	ELUXA LETTER PLATE, RED, EMERGENCY (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-MW (10Pk)	White	ELUXA LETTER PLATE, WHITE, EMERGENCY (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-FFR (10Pk)	Red	ELUXA LETTER PLATE, RED, FIRE / FEU (10 PAIR PER PKG. - 1 PAIR PER DEVICE)
ELLP-FFW (10Pk)	White	ELUXA LETTER PLATE, WHITE, FIRE / FEU (10 PAIR PER PKG. - 1 PAIR PER DEVICE)

Architects and Engineers Specifications

The LED outdoor notification appliances shall be Wheelock® EL3RSPK/EL4XSPK speaker EL3RSPST/EL4XSPST speaker strobe appliances for wall and ceiling-mount applications with a low-profile design or approved equals. Special lettering, including FIRE, ALERT and no lettering, shall be available. The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) shall be listed for: Certified to NEMA type 3R | 4X, IP54 |IP66 Certified |Tested to IP67, NFPA 72 2016 (Meets maximum light pulse duration of 20 ms), IEC 60529 2nd edition + amendment 3- August 2013, FCC Part 15B / ICES-003- Class A, UL 50 13th edition- October 2020, UL 50E 3rd edition- October 2020, UL464 11th edition: CAN/ULC 525 5th edition- May 2023, UL1480 7th edition: CAN/ULC S541 5th edition- May 2023, UL1638 6th edition: CAN/ULC S526 5th edition- April 2023, California State Fire Marshal (CSFM)- pending, Factory Mutual (FM)- pending, ADA/NFPA/ANSI/OSHA. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP) with the ability to operate from 16 to 33 VDC/VFWR.

The EL3RSPST/EL4XSPST speaker strobe appliances shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Light Emitting Diode (LED) as the light source with a rugged Lexan® lens. The appliances shall be of low current design. The LED strobe flash duration shall be 20 ms. Where Multi-Candela appliances are specified, the strobe intensity shall have 6 field selectable settings at 15, 30, 75, 110, 150 and 185 candela for the clear lens and 15, 30, 75, 95, 150, 177cd for the amber lens. The selector switch for selecting the candela shall be tamper resistant. Appliances with candela settings shall show the candela selection in a visible location at all times when installed.

The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) appliances shall include a mounting plate or surface mounting box from the factory. The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) incorporates pre-wire, pre-test mounting plate and back box terminals. The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) rated to NEMA type 3R, IP54 and NEMA type 4X, IP66 respectively, when used with the included mounting accessory. Two wire appliance wiring shall be capable of directly connecting to the mounting plate or back box. Removal of an appliance shall result in a supervision fault condition by the Fire Alarm Control Panel (FACP). All notification appliances shall be backwards compatible.

The outdoor series EL3RSPK/EL4XSPK, EL3RSPST/EL4XSPST, EL3RSPSTA/EL4XSPSTA (Amber) appliances shall provide installers ease of installation provided by the self-supporting hanging hinge feature.

When synchronization is required, the appliance shall be compatible with Wheelock®'s DSM Sync Modules, PS Power Supplies, Intelligent Notification Controller, SAFEPATH products or other manufacturer's panels with built-in Wheelock® Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync protocol fails to operate, the strobe shall revert to a non-synchronized flashrate and still maintain (1) flash per second over its Regulated Voltage Range.

The appliance shall also be designed so that the audible signal may be silenced while maintaining strobe activation when used with Wheelock® patented sync protocol.

Note: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Cooper Wheelock Inc., dba Eaton standard terms and conditions apply.

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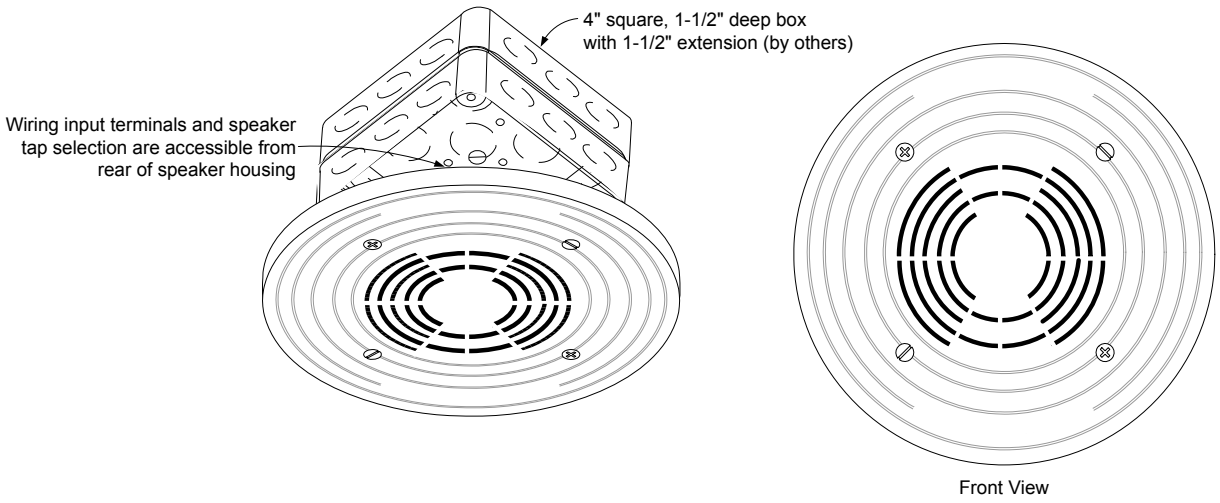
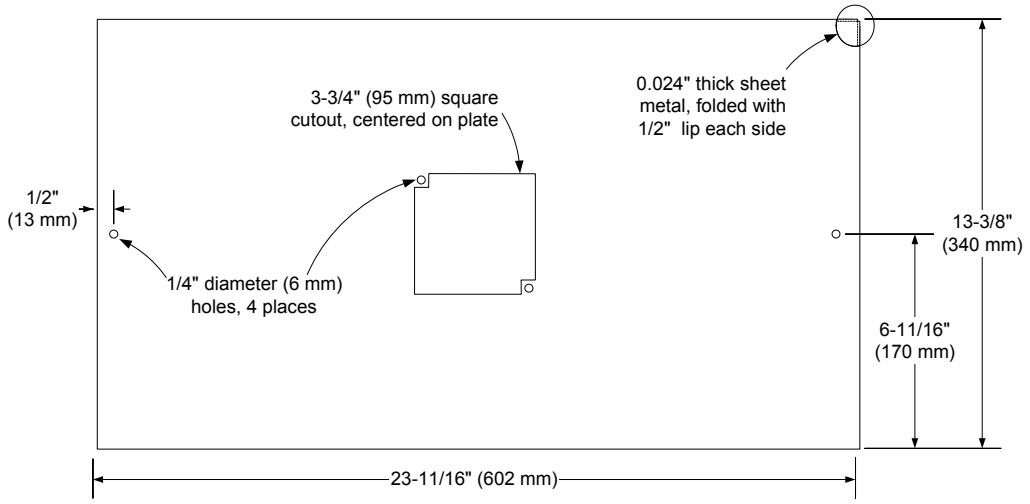
Powering Business Worldwide

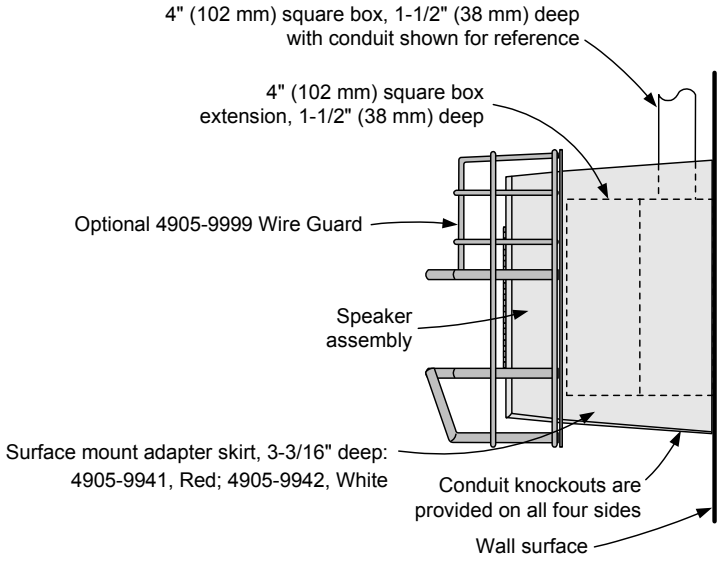
Round Speaker Installation Reference (typically ceiling mount, can be wall mounted)



2905-9946 Tile Bridge Dimensions



Surface Mounted Speaker Reference (Adapter Skirts are *Not ULC listed*)



Speaker Sound Output Specifications

Sound Output Ratings @ 10 ft (~3 m) **per UL 1480 Reverberant Chamber Testing**

Model	Type	Input Voltage	Selected Tap			
			¼ W	½ W	1 W	2 W
4902-9716 4902-9717	Rectangular Housing	25 VRMS	80 dBA	83 dBA	85 dBA	88 dBA
		70.7 VRMS	79 dBA	82 dBA	85 dBA	88 dBA
4902-9721	Round Housing	25 or 70.7 VRMS	79 dBA	82 dBA	85 dBA	88 dBA

Sound Output Ratings @ 3 m (~10 ft) **per ULC S541 Anechoic Chamber Testing**

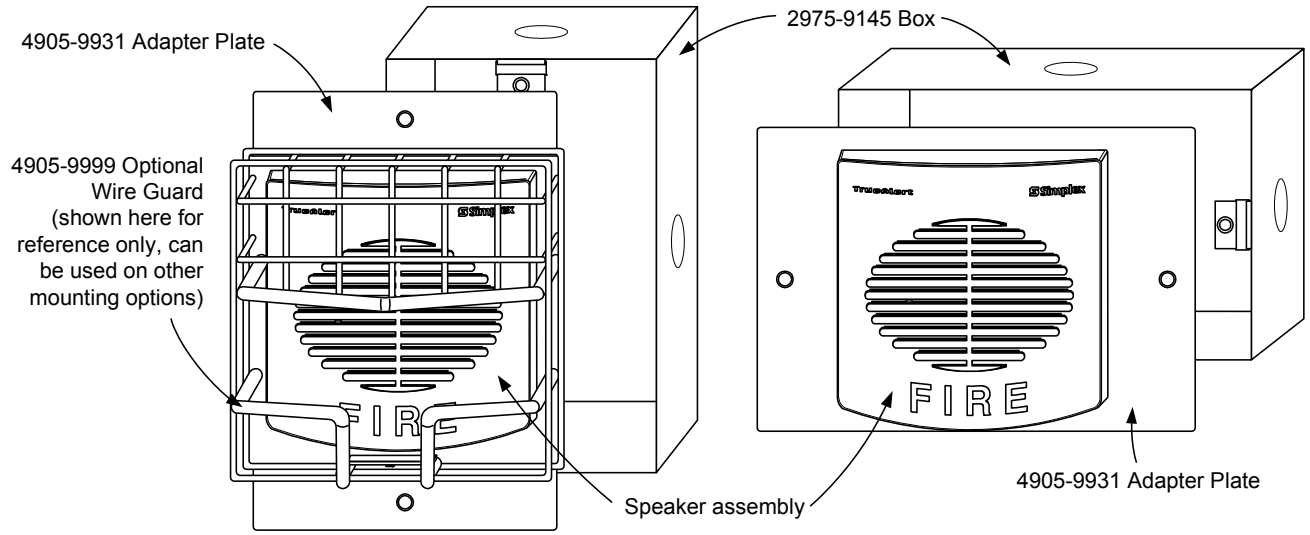
Model	Type	Input Voltage	Selected Tap			
			¼ W	½ W	1 W* (see note)	2 W* (see note)
4902-9716CA 4902-9717CA	Rectangular Housing*	25 VRMS or 70.7 VRMS	77 dBA	80 dBA	83 dBA	86 dBA
4902-9721CA	Round Housing*	25 VRMS or 70.7 VRMS	79 dBA	82 dBA	85 dBA	89 dBA

* NOTE: ULC Fire Alarm applications require use of 1 W or 2 W tap for Round Housing speakers; and 2 W tap for Rectangular Housing speakers.

Speaker Polar Dispersion Reference (per ULC S541 Anechoic Chamber Testing)

Attenuation	Angle
-3 dB	30° off-axis
-6 dB	55° off-axis

4905-9931 Adapter Plate Installation Reference



Connected Services Gateway - Central Station Communication and SafeLINC Cloud Services

Features

The Connected Services Gateway (CSG) is an all-in-one interface card that supports central station communication and enables SafeLINC Cloud Services. The CSG has the following features:

- Provides wired or wireless central station communication through LAN Ethernet, cellular, and plain old telephone service (POTS)
- Enables authorized users to access their managed fire alarm control units (FACUs) remotely through the SafeLINC web or mobile app
- Preserves front panel service port

Compatibility

- For use with Simplex 4100ES, 4010ES, 4007ES, 2050FS, and 2250FS FACUs
- Backwards compatibility. A migration path for existing SDACT is only installed in ES panels
- Connects to ES Network Card with Ethernet cable

Installation flexibility

- The internally mounted option reduces installation complexity and cost
- The externally mounted option is available to provide flexibility when space or cellular signal strength is inadequate

Connectivity flexibility

- You can configure central station reporting with one, or dual paths with a primary and secondary path
- Configure paths to use any of the external connections, telephone line, cellular or LAN Ethernet connections
- Antenna extension kits are available for installations with inadequate cellular signal

Standards and codes

- UL 864 10th edition, Control Units and Accessories for Fire Alarm Systems
- UL 1076, Proprietary Burglar Alarm Units and Systems
- ULC/ORD C1076, Proprietary Burglar Alarm Units and Systems
- CAN/ULC-S559 -13, Equipment for Fire Signal Receiving Centers and Systems
- CAN/ULC-S527 -11, Control Units for Fire Alarm Systems
- ISA/IEC 62443-4-1, Cybersecurity Compliance
- FCC ID: F5318LE9080
- IC: 160A-LE9080

Note: For UL 864 applications the CSG serves as an interface between the FACU and the Internet for off-premises central station reporting.

Central station communication

Central station supported interfaces

- Dual Line Phone DACT (ADEMCO Contact ID)
- 10/100 Base-T Ethernet (Fibro protocol)
- Cellular (Fibro protocol)

Building event information

The CSG communicates the following specific building event information:

- Point status changes, phone line status, and other off normal information to the central station and enterprise server
- Reports up to ten events through a call

Central station reporting configuration

- The ES Programmer installation includes a new PC application: the Central Station Configuration Tool (CSCT)
- The ES Programmer invokes the CSCT when editing central station settings

Path configuration

The CSG receives system status messages from the host FACU and communicates the information to a DACR at the central station using single or dual communication paths. The path configuration options are listed in Table 1.

Table 1: Path configuration

Primary path	Secondary path
IP*	-
IP*	IP*
Telephone	IP*
Telephone**	Telephone**
* IP can be cellular GSM 4G/LTE or Ethernet LAN/WAN.	
** For UL applications the secondary path cannot be another telephone line. For ULC-S559, the CSGs are evaluated as active communication systems. You can only use an IP path. For the UL 1076 application, you cannot install the CSG remotely in its own enclosure.	

SafeLINC Cloud Services

SafeLINC Cloud Services is a service facilitated by the CSG that creates a digital twin of the fire alarm system and provides remote access to fire alarm system activity to authorized users. SafeLINC Cloud Services has the following features:

- An encrypted and secure connection to the FACU through iOS®, Android®, and web applications
- Developed in accordance with internationally recognized cyber security standards
- Provides real-time FACU events notification, including Fire, Pri2, Supv, and Troubles
- A single portal to view all connected FACUs
- Download and view the latest FACU status reports
- Advanced analytics facilitates preventative maintenance of the system

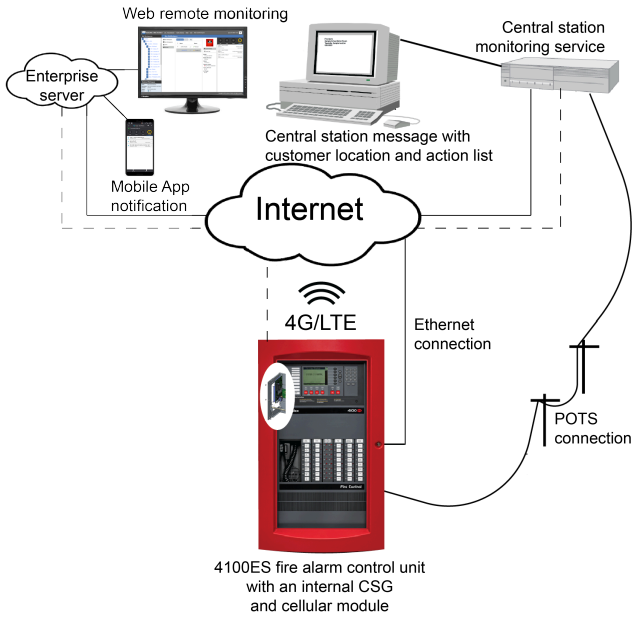


Figure 1: SafeLINC Cloud with central station reporting

* At the time of publication only UL and ULC listings are applicable. Additional listings may be applicable; contact your local product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

SafeLINC Cloud Services

The following sections detail the IP and cellular capabilities of enterprise server reporting.

Connected Services Gateway

The CSG connects an FACU to the SafeLINC Cloud Platform. The CSG maintains a secure connection to the Cloud Platform using any of the available communication methods and transfers the FACU's configuration, status, and events.

The CSG natively implements a generic FACU protocol that you can use with any FACU, and that you can adapt to support other legacy FACU protocols.

SafeLINC Cloud Platform

The Cloud Platform connects FACUs to the cloud and sends its status and events. The Cloud Platform is responsible for managing the link between the equipment and a user's account. It generates notifications in the form of emails or mobile application Push Notifications when an FACU event is reported.

SafeLINC Web Architect user interface (UI)

You can access the Web UI with most modern web browsers. The Web UI shows connected devices and their current state. You can also add new connected equipment to your workspace, invite other users, and configure notifications for equipment events.

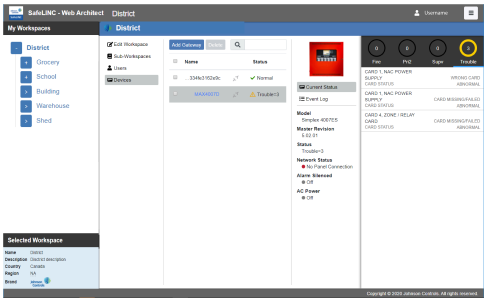


Figure 2: SafeLINC Web Architect UI

Figure 2 shows an example SafeLINC Web Architect UI, which can include the following information:

Workspaces

The SafeLINC Cloud Platform is composed of a collection of hierarchical containers called workspaces that enables authorized users to manage sub-workspaces, connected devices and authorized users. The workspace architecture provides flexibility for all users, from large commercial users managing multiple connected FACUs to single FACU users at a local level.

Selected Workspace

A detailed view of a specific workspace with the following information:

- Name and description
- Associated country and region

Sub-Workspace

View a non-aggregated list of CSGs and FACUs associated with a workspace.

A detailed view of a specific Gateway with the following information:

- Name or Unique Identifier (UID)
- Connectivity status to Cloud
- Operational status
- Cellular IMEI and ICCID, if available
- Current firmware version
- Associated FACU

A detailed view of a specific FACU with the following information:

- Brand and model
- Name
- Revision
- Connectivity status to Gateway
- Alarm Silenced Status
- AC Power status
- Current or last known active status by type (Fire, Pri2, Supv, or Trouble)
  - Active events count with acknowledge status
  - List of active events with acknowledge status
  - Details of the event
- FACU event log with filtering, search, and export capabilities

Notification settings

Notification settings include the following actions:

- Enable or disable all notifications by type
- Enable or disable specific notifications by Push or Email
- Configure notifications from individual FACUs

SafeLINC mobile app

Use the SafeLINC mobile app to supervise your managed FACUs and receive push notifications about FACU events on-the-go.

Figure 3: SafeLINC mobile app

Mobile app features

- Log on with Microsoft account credentials
- View assigned root workspace and all associated sub-workspace hierarchy
- View details of a specific workspace
- View non-aggregated list of FACUs associated with a workspace

View the following details of a specific FACU on the mobile app:

- Name
- Connectivity status
- Alarm Silenced status
- AC power status
- Current or last known active status by type (Fire, Pri2, Supv or Trouble)
  - Active events count with acknowledge status
  - List of active events with acknowledge status
  - Details of the event
- Event log with filtering and search capabilities
- Push notifications from selected FACUs and event types. Configure notifications in the Web UI.
- View list of push notifications received

Email

You can receive email notifications from selected FACUs and event types. Configure notifications in the Web UI.

Accessing the SafeLINC app

To access the SafeLINC web app, visit the following address:

https://safelinc.johnsoncontrols.com/

To download the SafeLINC mobile app visit the Google Play Store or Apple App Store by pointing your device's camera at the appropriate QR code, see Figure 4 and Figure 5, or type one of the following addresses:

https://apps.apple.com/us/app/safelinc/id1494023367

https://play.google.com/store/apps/details?id=com.jci.safelinc

Figure 4: QR code for SafeLINC mobile app on Google Play Store

Figure 5: QR code for SafeLINC mobile app on Apple App Store

Product selection

Table 2: Connected Services Gateway PIDs

Model	FACU type	Description	Ordering information
4100-2504	4100ES	Connected Services Gateway with IP Communicator: side mounted	Optional: either 4100-2504 or 4100-2506 is required
4100-2506	4100ES	Connected Services Gateway with IP Communicator: vertically mounted	Optional: either 4100-2504 or 4100-2506 is required
4010-2504	4010ES	Connected Services Gateway with IP Communicator	Required
4007-2504	4007ES	Connected Services Gateway with IP Communicator	Required
2250-9800	2050FS and 2250FS	Connected Services Gateway with IP Communicator	Required

Table 3: External boxes

Model	FACU type	Description	Ordering information
2975-9234	4007ES, 4010ES, 4100ES, 2050FS, and 2250FS	External box, red	Required when ordering 4007-6417 for 2050FS or 2250FS FACU.
2975-9235		External box, platinum	
2975-9236		External box, beige	
4100-6900	4100ES	20 ft (6.1 m) Power harness for CSG external enclosure	Optional
4010-6900	4010ES		
4007-6900	4007ES		
0734-383	2050FS and 2250FS	6 ft (1.8 m) Communication cable for external FS gateway module	Required when ordering 4007-6417 for 2050FS or 2250FS FACU.

Table 4: Cellular modules and antennae

Model	FACU type	Description	Market	Ordering information
4007-6416	4007ES, 4010ES, 4100ES	GSM 4G/LTE Cellular Module kit for internal installations	North America (AT&T and Rogers)	Optional: SIM card not included
4007-6417	4007ES, 4010ES, 4100ES, 2050FS, 2250FS	GSM 4G/LTE Cellular Module kit for external box installations		
4007-6405	4007ES, 4010ES, 4100ES, 2050FS, 2250FS	15 ft (4.57 m) antenna extension kit	Global	Optional
4007-6406	4007ES, 4010ES, 4100ES, 2050FS, 2250FS	25 ft (7.62 m) antenna extension kit		Optional
4007-6407	4007ES, 4010ES, 4100ES, 2050FS, 2250FS	50 ft (15.24 m) antenna extension kit		Optional

Specifications

Table 5: CSG electrical specifications

Specification	Rating	
Voltage DC	Nominal 24 V	Battery
Current DC	125 mA	125 mA

Table 6: Cellular module electrical specifications

Specification	Rating
Voltage DC	Nominal 24 V draw through the CSG
Current DC	20 mA

Table 7: CSG and cellular module environmental specifications

Specification	Rating
Temperature	Normal operation with ambient temperature outside the cabinet at 32°F to 120.2°F (0°C to 49°C)
Humidity	Normal operation under non-condensing humidity conditions up to 93% relative humidity at 100.4°F (38°C)

Table 8: External box

PIDs	Width	Depth	Height
2975-9234 red	9.4 in. (23.9 cm)	2.3 in. (5.8 cm)	6.1 in. (15.5 cm)
2975-9235 platinum			
2975-9236 beige			

Table 9: Antenna specifications

—	4007-6405	4007-6406	4007-6407
Specification	**Rating**		
Antenna type	1/4 wave helical	1/4 wave helical	1/4 wave helical
Gain	3.0 dBi	3.0 dBi	3.0 dBi
Polarization	Linear vertical	Linear vertical	Linear vertical
Frequency range	698-2700 MHz	698-2700 MHz	698-2700 MHz
Azimuth beam width	Omnidirectional	Omnidirectional	Omnidirectional
Total weight including cable	1.68 pounds (0.76 kg)	2.16 pounds (0.98 kg)	3.44 pounds (1.56 kg)
Antenna length/diameter	13.1 in. (333 mm)	13.1 in. (333 mm)	13.1 in. (333 mm)
Coaxial cable length	15.1 ft (4.6 m)	24.6 ft (7.5 m)	49.2 ft (15 m)
Connector type	RP-SMA Male	RP-SMA Male	RP-SMA Male