Building Systems
Submittal Package

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

MRI Pre-Action Panel Replacement
Fire Alarm System Tenant Improvement

Revision Date: 2023-04-05

Johnson Controls Fire Protection
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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. **BRYAN REIMER** is the Johnson Controls Project Manager assigned to this project to help with generic project information. **ERIC BECK** is the project system specialist to assist with drawings/design questions. **YVONNE THOMPSON** is available for scheduling technicians.

Office: (206) 291-1400

Fax: (206) 291-1500

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 **10** 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, MAPNET, 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 Tenant Improvement

Quantity	Product ID	Product Description
1	4007-9101	4007ES Pre-Action System Control Panel, Red, 120VAC
1	4007-9810	4007ES Modular Network Interface Card
2	4007-9813	4007ES Wired Network Media Card
1	4007-9830	4007ES Supression Release Applique Kit
2	2081-9275	18Ah 12V Battery
4	4090-9001	Supervised IAM
1	4090-9006	Suppression Releasing Peripheral, Surface Mount, Enclosure Included
1	2081-9046	Coil Supervisory Module
1	2080-9060	Maintenance Disconnect Switch
1	4098-9714	Photoelectric Smoke Sensor Head
1	4098-9792	Addr. Standard Sensor Base
1	4099-9015	Addr. Manual Push-Pull Station for Releasing
1	4099-9802	Releasing Station Label Kit

Existing Relocated/Reused Equipment

Quantity	Product ID	Product Description
3	4090-9001	Supervised IAM

Equipment List Subject to Change.

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Simplex

*UL, ULC, CSFM Listed; FM, NYC Fire Dept Approved**

Datasheet

4007ES Fire Control Units

4007ES Hybrid, Fire Detection and Control Unit with Addressable and/or Conventional Initiation

Features

Compatible with Simplex ES Net and 4120 fire alarm networks

Satisfies a variety of new and retrofit applications

4.3 in. (109 mm) diagonal color touchscreen display:

- Provides detailed system status and point information
- Supports dual language selection, including unicode character languages
- A custom background display appears when operation is normal

Eight 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); one module is standard and you can field install up to three additional modules for a total of four 8 point zone/relay modules for each system
- You can configure each point on the IDC/Relay module as a control relay rated 2 A at 30 VDC (resistive) as either normally open or normally closed
- Power comes directly from the power supply or through the optional 25 VDC Regulator Module
- You can select the IDC end-of-line (EOL) resistor value from a wide range of resistance values for retrofit convenience

Electrically isolated IDNet 2 addressable initiating device SLC:

- Provides built-in short circuit isolation for monitoring and control of TrueAlarm analog sensors and IDNet communications monitoring and control devices; for use with either shielded or unshielded, twisted or untwisted single pair wiring; outputs are Class A or Class B
- Standard panel signaling line circuit (SLC) provides up to 100 addressable points; optional additional loop expansion modules provide an additional isolated loop with short circuit isolation for the IDNet 2 channel; each loop expansion module also provides an additional 75 addressable points

Power supply:

- Four notification appliance circuits (NACs) selectable as Class A or Class B with 6 A total available current
- You can select the NAC EOL resistor value from a wide range of resistance values for retrofit convenience
- Additional notification power capacity is available using the 4009 IDNet NAC Extender
- Battery backup charging of up to 33 Ah; up to 18 Ah for cabinet-mounted batteries and up to 33 Ah for batteries mounted close-nippled remote battery cabinet

General mechanical:

- Red or platinum cabinet; rated NEMA 1 and IP30

4007ES Listings reference:

- UL 864 - Control Units, System (UOJZ); Control Unit Accessories, System, Fire Alarm (UOXX); Control Units, Releasing Device Service (SYZV)
- UL 2017 - Emergency Alarm System Control Units (CO detection), (FSZI)
- ULC-S559 - Central Station Fire Alarm System Units (DAYRC)
- ULC-S527 - Control Units, System, Fire Alarm (UOJZC); Control Unit Accessories, System, Fire Alarm (UOXXC); Control Units, Releasing Device Service (SYZVC)

Figure 1: 4007ES Hybrid Unit front view

Software feature summary:

- Current and previous panel configuration maintained in on-board memory
- An internal Ethernet service port is available for service computer connections to perform configuration updates, downloads and uploads; report downloads, and update system software
- Internal USB interface allows a memory stick to store job revisions, update revised jobs and panel software, and save detailed system reports from the panel

Optional modules and connections include:

- Fire alarm network interface card (NIC) for ES Net or 4120 network
- Peer-to-Peer network communications, supports either Class B or Class X operation
- Point or Event DACT assembly for IP Communicators
- Up to two additional IDNet 2 addressable device output loop connections with short circuit fault protection and with 75 additional point capacity each
- Front mounted 48 LED annunciator with custom label inserts; LEDs are programmable for up to 24 IDC zones of alarm and trouble annunciation or other custom annunciation requirements
- Remote LED annunciator support through remote user interface (RUI) communications port for use with UTP wiring
- Dual RS-232 ports for printer, PC annunciator or third party interface
- TrueInsight Remote Gateway
- Alarm relays and auxiliary relays
- City connections, with or without disconnect switch
- 4009 IDNet NAC Extenders to extend NAC capability for power and distance
- Battery brackets for seismic area protection; see Mechanical description for more information

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:0378 for allowable values and/or conditions concerning material presented in this document. NYC Fire Dept COA #6191A. 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 product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Introduction

4007ES Series Fire Detection and Control Units provide extensive installation, operator, and service features with point and module capacities suitable for a wide range of system applications. Panels can be configured for stand-alone or networked fire control operation. The convenient and intuitive color touchscreen provides easy access for typical system response actions and for detailed system review or configuration updates with password control to limit user access.

Standard conventional IDCs and addressable IDNet 2 communications provide flexibility for both new and retrofit systems. IDC and NAC EOL resistor values are selectable to match a wide range of existing initiating device circuits and notification appliance circuits.

ES panel compatibility with ES Net

Simplex ES Network (ES Net) is a next generation IP-based fire network that uses industry standard network technology and infrastructure, and allows for simplified network upgrades, easy terminal connectivity and IP file transfer between nodes, and advanced network diagnostics.

You can upgrade ES fire alarm control units (FACUs) to operate on an ES network by adding an ES Net NIC to the panel.

To upgrade an existing 4120 network to ES Net, you must replace all of the 4120 NIC cards on the network loop with ES Net NICs.

Note: ES NICs and 4120 NICs cannot be mixed on the same network loop.

For more detailed information on ES Net, refer to data sheet *S4100-0076*, and talk to your local Simplex product supplier.

Operator interface

Convenient status information

With the locking door closed, the glass window allows viewing of the display status LEDs. The user interface is a 4.3 in. (109 mm) diagonal color touchscreen LCD with separate status LEDs, see Figure 2.

LED indicators describe the general category of activity being displayed and the LCD provides more detail. Authorized user can unlock the door to gain access to the control functions and scroll through the display for additional detail.

Operator interface and software features

- Convenient and detailed operator information is easily accessible using a logical, menu-driven touchscreen display with password access control
- 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 display or for printing to a connected printer, or downloaded to a service computer
- Module level ground fault searching assists installation and service by locating and isolating modules with grounded wiring
- WALKTEST silent or audible system test performs an automatic self-resetting test cycle and supports up to eight WALKTEST groups
- 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

Touchscreen display with LED status indicators

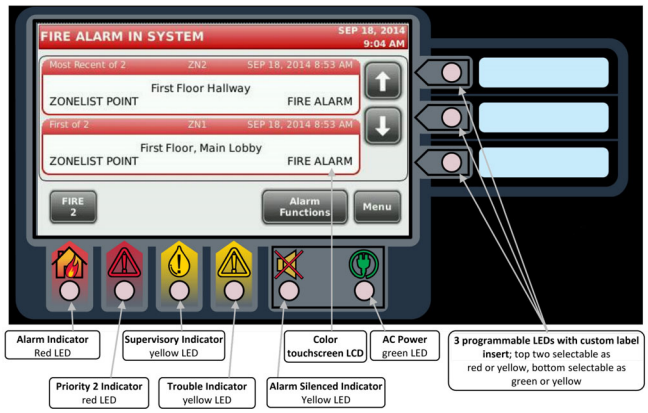


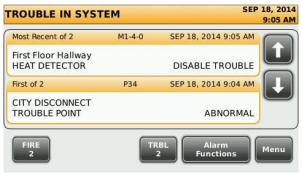
Figure 2: Touchscreen display with LED status indicators

Operator screen reference

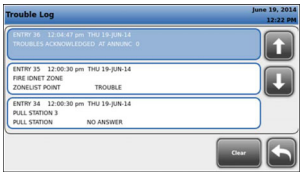
Main Menu screen provides easy navigation to the function required. Buttons A, B, and C have programmable functions.

System Alarm screen identifies active alarms with custom labels displayed. Use the arrows to allow navigation through the list.

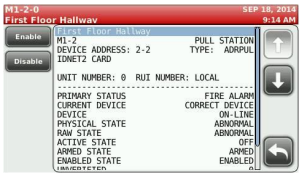
System Trouble screen identifies active troubles with custom labels displayed, arrows allow navigation through the list.



Trouble Log screen allows review of past troubles with time stamp and point details shown.



Point Information screen allows review of point details, arrows allow navigation through the information.



User Access Login screen controls access to panel operations as determined per panel.

Mechanical description

- Locking door with polycarbonate window
- Latching front panel assembly swings forward for convenient internal access
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- Modules are power-limited except as noted, such as relay modules
- Battery compartment (bottom) accepts two batteries, up to 18 Ah, to be mounted within the cabinet without interfering with module space;

charger capacity is up to 33 Ah; for information about batteries greater than 18 Ah and external battery cabinets, see Module and accessories selection information

- Cabinet assembly design 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, refer to data sheet *S2081-0019* for more information

IDNet 2 addressable device control

The 4007ES Hybrid provides an IDNet 2 addressable initiating device signaling line circuit (SLC) that supervises wiring connections and the individual device communications status on the SLC. With 2-wire IDNet 2 SLCs, initiation, monitoring, and control devices such as manual fire alarm stations, TrueAlarm sensors, control relays, and sprinkler waterflow switches can communicate their identity and status and receive fire alarm system control. Additional addressable interface modules include circuit isolators, conventional IDC zone adapters, and interface to other system circuits such as fans, dampers, and elevator controls.

IDNet 2 addressable device operation

Each addressable device on the IDNet 2 communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Both Class B and Class A operation is available. Sophisticated poll and response communication techniques ensure supervision integrity and allow for T-tapping of the circuits 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. With addressable devices, the location and status of the connected device is monitored, logged, and displayed on the operator interface LCD with each device having its own 40-character custom label for precise identification.

TrueAlarm addressable sensor operation

Addressable initiating 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.

Figure 3: TrueAlarm Photo Sensor with base

Figure 4: TrueAlarm Photo/ Heat Sensor in CO base

Programmable sensitivity

Programmable sensitivity of each sensor is selectable 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 or downloaded as a report and compared to the alarm threshold directly in percent.

CO sensor bases

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. You can enable and disable the CO sensor, and you can use it in LED/Switch modes and custom control. Refer to data sheet *S4098-0052* for more details.

TrueAlarm heat sensors

You can select TrueAlarm heat sensors 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 are selectable as either Fahrenheit or Celsius.

TrueSense early fire detection

Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 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 FACU 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 end of life.

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 disable, heat sensors may be installed without reprogramming the FACU. The FACU 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.

IDNet 2 addressable channel capacity

The 4007ES Hybrid provides an isolated output IDNet 2 SLC that supports up to 250 addressable monitor and control points intermixed on the same pair of wires. 250 total requires two 4007-9803 IDNet 2 loop expansion modules.

Table 1: IDNet 2 SLC wiring specifications

Specification		Rating
Maximum distance from control panel for each device load	0 to 125	4000 ft (1219 m); 50 ohms
	126 to 250	2500 ft (762 m); 35 ohms
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
Loading for each device		0.8 mA supv., 1 mA alarm; 2 mA for each activated device LED
Wire type and connections		Shielded or unshielded, twisted or untwisted wire, see note.
Connections		Terminal blocks for 18 AWG to 12 AWG
Compatibility includes: IDNet communicating devices and TrueAlarm sensors including QuickConnect and QuickConnect2 sensors; see data sheet *S4090-0011* for additional reference. **Note:** Some applications may require shielded wiring. Review your system with your local Simplex product supplier.		

Power supply output and zone/relay module details

Power supply output details

- RUI Communications controls up to 10 remote devices 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; selectable as Class B or Class A
- Compatible RUI remote equipment includes: 4606-9202 and 4606-9205 Color Touchscreen Annunciators (up to 6 total), 4100 Series 24 I/O and LED/Switch modules, 4602 Series LED/Switch and I/O Annunciator modules, including 4602-9101 Status Command Units (SCU), and 4602-9102 Remote Command Units (RCU)
- IDNet 2 SLC output provides electrically isolated Class B or Class A communication; standard capacity is up to 100 addressable points with expansion for up to 250 points using up to two 4007-9803 IDNet 2 Loop Expansion Modules; as described in IDNet 2 addressable channel capacity
- 6 A output rating, including current for: special application notification appliances; IDNet devices; module currents; and auxiliary output current (battery charging, CPU, and power supply current does not subtract from the 6 A); when NACs are controlling Regulated 24 DC Appliances, total NAC current available is 3 A
- Four on-board Class B/Class A NACs, rated 3 A each for Special Application appliances; selectable for SmartSync horn and strobe control, or strobe synchronization; rated 2 A each for Regulated 24 DC appliances
- NAC EOL resistor values are selectable as: 10 kohms, 3.9 kohms, 4.7 kohms, 5.1 kohms, 5.6 kohms, or 15 kohms
- Battery charger is dual rate, temperature compensated, and charges up to 18 Ah sealed lead-acid batteries mounted in the battery compartment, and charges up to 33 Ah batteries mounted in an external cabinet
- 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, and NAC current
- Low Battery Voltage Cutout is selectable when required (required for ULC Listing applications)
- 2 A Auxiliary Output (AUX/SNAC) can be selected either as resettable auxiliary power of 2 A @ 24 VDC, or selected to be a simple NAC (SNAC) for sounder base power, four-wire detector power, or door holder power

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

4007ES mounting and module location reference

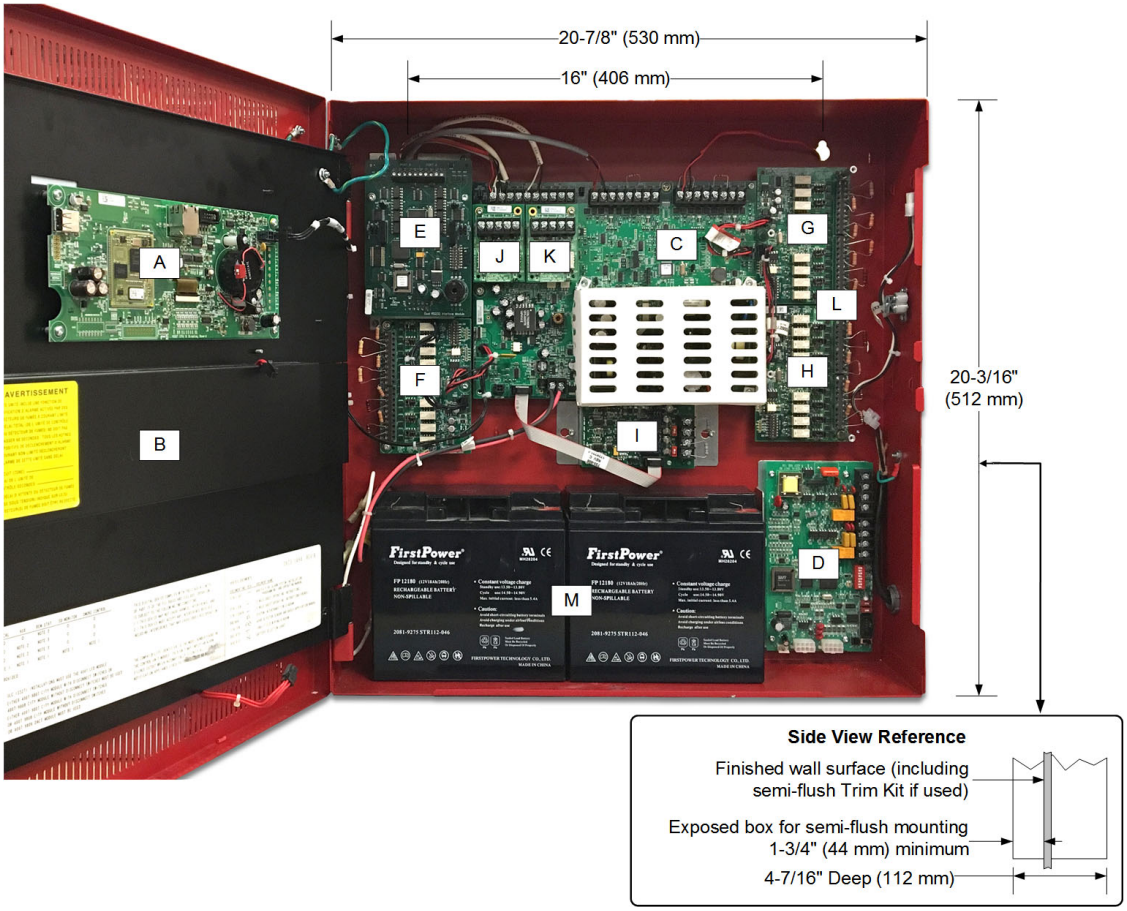


Figure 5: 4007ES mounting and module location reference

Table 2: Module locations

Key	Description
A	CPU and user interface assembly.
B	Location for optional 4007-9805 LED module.
C	Power Supply Assembly.
D	4007-9806 SDACT location. **Note:** The SDACT includes a 650-1838 flat mounting bracket (available separately). Some pre-existing systems with an angled SDACT bracket will need to be replaced with the flat mounting bracket when an NIC is installed.
E	Location for 4007-9801 Zone/Relay Module, 4007-9812 Dual RS-232 Interface, 4007-9804 Dual Class A IDNAC Isolator (DCAI), or (as shown) 4007-9802 25 V Regulator Module
F	Primary location for 4007-9801 Zone/Relay Module, or 4190-6106 TrueInsight Remote Service Gateway.
G	Location for additional 4007-9801 Zone/Relay Module.
H	Location for additional 4007-9801 Zone/Relay Module.
I	4007-9807 or 4007-9808 City Circuit Module, or 4007-9809 Relay Module.
J	4007-9803 IDNet 2 Loop Expansion Modules, maximum of two (two are shown).
K	4007-9803 IDNet 2 Loop Expansion Modules, maximum of two (two are shown).
L	Block L is an additional block that sits on spacers above block G and H. You can mount the 4007-9810 or 4007-9817 NIC in block L with or without modules mounted below it in blocks G and H. When you use fiber media cards and an SDACT is present, the SDACT requires a 650-1838 flat mounting bracket, ordered separately.
M	Battery location for up to 18 Ah batteries. **Note:** No conduit entry or wiring in this area, 14 7/8 in. (378 mm) wide.

Note: A system ground must be provided for Earth Detection and transient protection devices. This connection shall be made to an approved, dedicated Earth connection per NFPA 70, Article 250, and NFPA 780.

Product selection

Table 3: 4007ES Hybrid product selection

Model	Color	Description	Supv.	Alarm
4007-9101	Red	4007ES Hybrid with four conventional NACs, 6 A output power supply/battery charger and one IDNet 2 SLC for up to 100 addressable points	145 mA	190 mA
4007-9101BA				
4007-9102	Platinum			
4007-9102BA				
Both models above include:		One 4007-9801 Zone/Relay Card	83 mA	295 mA

Note:

- Models with (BA) are available assembled in the USA.
- The current draw for the 4007ES Hybrid Unit (without included modules) does not subtract from the 6 A of power available for optional modules and external loads. For power supply loading calculations include all modules plus all external loads and exclude the 4007ES Hybrid Unit current. For battery standby calculations include all modules, all external loads, and the base 4007ES Hybrid Unit current.

Module and accessories selection information

Table 4: Factory programming options

Model	Description
4007-8810	Factory Programming (select)
4007-0831	Custom Labels and Programming (requires 4007-8810)

Table 5: Field installed optional modules

Model	Description		Supv.	Alarm
4007-9801	Eight 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); one module is included as standard, select up to three additional. Alarm current shown is for eight Class B IDCs using 3.3K EOL resistors with four IDCs in alarm and four IDCs in standby. Supervisory current shown is for all eight IDCs in standby. Detector current is added separately. Refer to *579-1103 Zone/Relay Module Installation Instructions* for more information.		83 mA max	295 mA max
4007-9802	25 VDC Regulator Module; 2 A maximum output; use to power Zone/Relay modules connected to initiating devices requiring nominal 25 VDC voltage. Refer to technical publication *579-832 2-Wire Detector Compatibility Chart* for application details.	with 1 module	190 mA	445 mA
		with 2 modules	290 mA	801 mA
		with 3 modules	390 mA	1156 mA
4007-9803	IDNet 2 Loop Expansion Module; provides an additional isolated loop with short circuit isolation to the existing IDNet 2 channel, also provides an additional 75 addressable points to the IDNet 2 channel capacity, maximum of two		NA	NA
4007-9805	Panel Mounted 48 LED Status Annunciator Module; provides 24 Yellow LEDs, 20 Red LEDs, and four Red/Green LEDs that are programmable for up to 24 IDC zones of alarm and trouble annunciation, or as required for custom annunciation requirements	no LEDs on	10 mA	10 mA
		with LEDs on	1.75 mA per LED, 105 mA max	
4007-9806	SDACT Module for Point or Event Reporting Order 2080-9047 connection cables as required; see Table 9		30 mA	40 mA
4007-9807	City Circuit Module with disconnect switch		20 mA	36 mA
4007-9808	City Circuit Module without disconnect switch		20 mA	36 mA
4007-9809	Relay Module; relays for Alarm, Supervisory, and Trouble; rated 2 A resistive @ 32 VDC		15 mA	37 mA
4007-9812	Dual RS-232 Interface Module; Compatible with Simplex remote printer, PC annunciator or third party interface (two ports/connections maximum)		60 mA	60 mA

Table 6: Field installed optional network modules

Model	Description		Supv.	Alarm
4190-8001	TrueInsight remote service gateway module and programming selection	Required selection	62 mA	73 mA
4190-6106	TrueInsight remote service gateway module installation kit; includes module and harness; configured for dynamic IP address operation unless ordered with 4190-4016			
4190-4016	TrueInsight remote service gateway module for fixed IP Addressing; optional, select if application will use fixed IP address			

Note: Refer to data sheet *S4100-0063* for additional TrueInsight service gateway details

Network interface and network media card product selection

4007ES FACUs are compatible with Simplex ES Net network or 4120 network fire alarm products.

- Refer to data sheet *S4100-0076* for additional information on compatible ES Net fire alarm products.
- Refer to data sheet *S4100-0056* for additional information on compatible 4120 network fire alarm products.
- Refer to data sheet *S4100-0061* for additional information on the Building Network Interface Card (BNIC).

Table 7: Batteries

Model	Capacity	Battery mounting details
2081-9272	6.2 Ah	12 V Batteries for cabinet mounting; select one battery model per system standby requirements; order quantity of two; to be wired in series for 24 VDC
2081-9274	10 Ah	
2081-9288	12.7 Ah	
2081-9275	18 Ah	
2081-9287	25 Ah	Requires 4009-9801 external battery cabinet, see Table 8
2081-9276	33 Ah	

Table 8: Battery cabinets

Model	Color	Capacity	Dimensions (H x W x D)	Description
4009-9801	Beige	For up to 33 Ah batteries, see note	13 1/2 in. x 16 1/4 in. x 5 3/4 in (413 mm x 343 mm x 146 mm)	External battery cabinet without charger for mounting close-nippled to the fire alarm control unit cabinet; includes locking solid door. Use battery harness 734-304 for a NAC power supply and harness 734-303 for an IDNAC power supply; battery harnesses are shipped with the panel.

Note: 33 Ah capacity requires 2081-9276 **square** 33 Ah batteries.

Table 9: Accessories

Model	Description
2080-9047	DACT cable, 14 ft (4.3 m) long, RJ45 plug one end, spade lugs on the other; order one per phone line connection required
2975-9812	Red semi-flush box trim; 1 7/16 in. (37 mm) wide, four corners and trim pieces for top, bottom, and sides
2975-9813	Platinum semi-flush box trim; 1 7/16 in. (37 mm) wide, four corners and trim pieces for top, bottom, and sides
2081-9031	Platinum semi-flush box trim; 1 7/16 in. (37 mm) wide, four corners and trim pieces for top, bottom, and sides
4081-9002	3.3 kohms, 1 W EOL resistor for Class B non-addressable initiating zones
4081-9018	10 kohms, 1 W EOL resistor harness for non-addressable NACs

General specifications

Table 10: General specifications

Specification		Rating	
Input power	120 VAC input	2 A maximum @ 102 VAC to 132 VAC, 50/60 Hz	
	240 VAC input	1 A maximum @ 204 VAC to 264 VAC, 50/60 Hz	
4007ES Hybrid power supply output ratings	Power supply output rating	Including module currents and auxiliary power outputs; 6 A total	Output switches to battery backup during mains AC failure or brownout conditions
	NAC ratings	3 A each for Special Application Appliances	
		2 A each for Regulated 24 DC Appliances	
	Auxiliary power tap	2 A maximum, 24 VDC nominal (19.5 VDC to 31.1 VDC)	
Special application non-addressable appliances		Simplex horns, strobes, and combination horn/strobes and speaker/strobes; contact your Simplex product representative for compatible appliances	
Regulated 24 DC non-addressable appliances		Power for other UL listed appliances; use associated external synchronization modules where required	
Battery charger ratings (sealed lead-acid batteries)	Battery capacity range	UL and ULC listed for battery charging of 6.2 Ah up to 33 Ah; batteries larger than 18 Ah require a remote battery cabinet	
	Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 48 hours per UL Standard 864; to 70% capacity in 12 hours per ULC Standard S527	

Table 11: Custom background and environmental details

Item		Description
Custom background display details		Supported file types: JPG, BMP, GIF, and PNG Recommended image type is JPG, recommended image size is 480 x 240, and the file size limit is 100 kb
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

Additional 4007ES and network product reference data sheets

Table 12: Additional 4007ES and network product reference data sheets

Title	Document number
Serial DACT (SDACT) for 4100ES, 4010ES, 4007ES	S2080-0009
Seismic Battery Brackets Reference	S2081-0019
4003EC Voice Control Unit	S4003-0002
4007ES Panels with Addressable Notification	S4007-0002
4007ES Extinguishing Release Applications	S4007-0003
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
NDU with SPS Power Supplies for 4120 Network	S4100-0036
InfoAlarm Command Center with SPS Power Supplies	S4100-0045
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
TrueInsight Remote Gateway	S4100-0063
ES Net Network Products and Specifications	S4100-0076
NDU with SPS Power Supplies for ES Net	S4100-0077
InfoAlarm Command Center with EPS Power Supplies	S4100-0101
NDU with EPS Power Supplies for 4120 Network	S4100-0102
NDU with EPS Power Supplies for ES Net	S4100-0104
PC Annunciator	S4190-0013
TrueSite Workstation	S4190-0016
TrueSite Incident Commander	S4190-0020
24-Pin Dot Matrix Fire Alarm System Remote Printer	S4190-0027
SCU/RCU Annunciators	S4602-0001
4606 Series Color Touchscreen LCD Annunciators	S4606-0003

4007ES Hybrid additional reference

Figure 6: 4007ES Hybrid with optional 48 LED Annunciator Module (4007-9805)

Figure 7: 4606-9205 (Platinum) Color LCD Touchscreen Remote Annunciator

Figure 8: 4606-9202 (Red) Color LCD Touchscreen Remote Annunciator

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Features

4120 network communications among system fire alarm control units provide:

- Support for up to 99 nodes per network loop to provide network emergency voice broadcasts and centralized command center operations
- Multiple network loops for campus and other high panel quantity applications
- Network-wide initiation of alarm silence, acknowledge, and reset; and investigation of status and details of system points and point lists
- Distributed system operation to ensure excellent survivability; during a communications fault condition, Network nodes remaining connected will regroup and continue communicating
- Flexible network annunciator options such as TrueSite workstations, network display units (NDU) and NDUs with voice command center (VCC)
- Use of InfoAlarm command center equipped nodes to provide increased network information display capability
- Network level command and control provides manual point control for on/off or disable/enable, as well as gathering specific point detail

Simplex 4120 fire alarm network communications are available for wired or fiber optic connections

- Wired communications are available on network interface cards (NICs); available with either wired connections only, or as a modular design allowing selection of either wired or fiber optic media modules
- Fiber optic communications are available with fiber media modules on the NIC or when using the higher performance multiple signal fiber optic modems
- Fiber optic links are point-to-point continuous (unswitched) connections between fire alarm network nodes
- LED status indicators assist with system setup and servicing

Modular network interface cards details

- Class B or Class X network communications using wired or fiber optic media modules; selectable separately to match media requirements

Wired media module details

- Provides isolated earth detection
- Compatible with Simplex isolated loop and over-voltage protectors
- Electrical characteristics are similar to RS-485

Duplex fiber optic media module details

- Fiber optic links provide immunity to electrical transients, short circuits, and ground conditions
- Laser based fiber optic media modules use one multi-mode or one single-mode fiber to communicate; includes a single type SC connector compatible with 62.5/125µm or 50/125µm multi-mode fiber, or 9/125µm single-mode fiber
- Onboard diagnostics provide information regarding the performance and health of the fiber link.

Multiple signal fiber modem details

- Laser based half-duplex communications for a variety of signal combinations over a single fiber connection
- Available for single mode or multi-mode fiber
- Increased transmission distances compared to copper wiring (over 20 miles (32 km) may be possible with low-loss single-mode fiber)
- Multiple signal modems can be mounted within the cabinet for 4100 series control units. For other compatible fire alarm control units external cabinets are available. Please refer to datasheet *S4100-0049* for details.

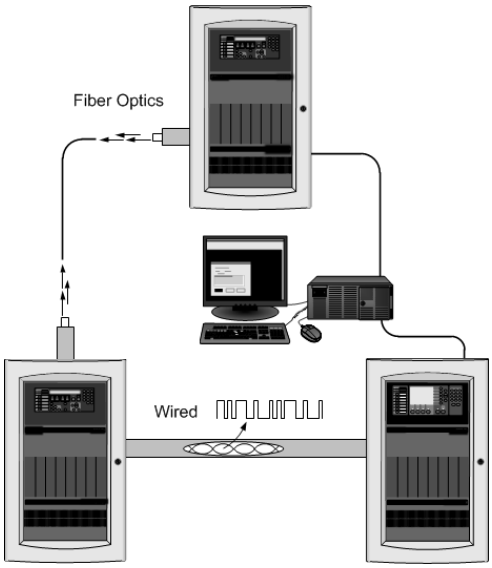

Figure 1: Fire alarm network communications, wired or fiber optic

Physical bridge modules connect multiple network loops and provide star topology connections

- Physical bridge modules connect to network communications using wired or fiber optic media and interconnect using modem media modules. Refer to datasheet *S4100-0057* for details.
- TCP/IP physical bridge modules are similar but provide local area network (LAN) compatible interconnections. Refer to datasheet *S4100-0029* for details.

Network diagnostics include:

- Attendance and polling error logging
- LED status indications on interface board
- Synchronized time and date allowing precise data logging

Listings information

Applicable listings for 4120 network control units and accessories:

- UL 864, Fire Detection and Control (UOJZ), Smoke Control Service (UUKL), Releasing Device Service (SYZV)
- 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)
- ULC/ORD-C1076 Proprietary Burglar Alarm Units and Systems (APOU7)
- ULC/ORD-C100 Smoke Control System Equipment (UUKL7)

Refer to individual product datasheets for specific product listing details.

Basic 4120 network operation

Simplex fire alarm networks communicate information among distributed Simplex fire alarm panels. Systems may be composed of similar capability panels sharing information, or specific nodes may be added to perform dedicated network functions. Illustrations on the following pages provide a summary of a variety of fire alarm Network applications.

For non-Simplex panels, a Network System Integrator can be used to connect equipment to the network using optically isolated inputs and relay contact outputs.

Nodes

Each panel with direct communications into the network is defined as a node. Each node can be a large or small fire alarm control unit, TrueSite Workstation, TrueSite Incident Commander, or Network System Integrator.

Communications process

Network information is sequentially transmitted from one node to another. At each node, the network message is captured and either retransmitted as received, or modified before retransmission to provide the network with a status update. The ability of the message to circulate through the network will define the network status and allow the nodes to respond accordingly.

Survivability

If a node goes "off-line" or if the connection between nodes either shorts, opens, or has any other form of communication problem, the nodes will isolate that section of wiring. Nodes that cannot retransmit onto the next node of the network will transmit back to the previous node to maintain communications and to notify the network of the node status. In the event of multiple wiring problems, the remaining nodes will effectively "regroup" and establish new, smaller "sub-networks" that will maintain communications among the active nodes.

Communications options

Figure 2 shows a multiple node network interconnected with a variety of communications means for reference.

- Wired communications are compatible with a variety of new and retrofit wiring
- Duplex fiber optic media card communications use a single fiber (available for single mode or multi-mode fiber) and are dedicated to Network communications
- Multiple communication modems use a single fiber (available for single mode or multi-mode fiber) and can carry multiple communications signals such as network communications and network audio broadcasts
- TCP/IP physical bridge modem communications are also available, refer to Additional 4120 network reference for more information

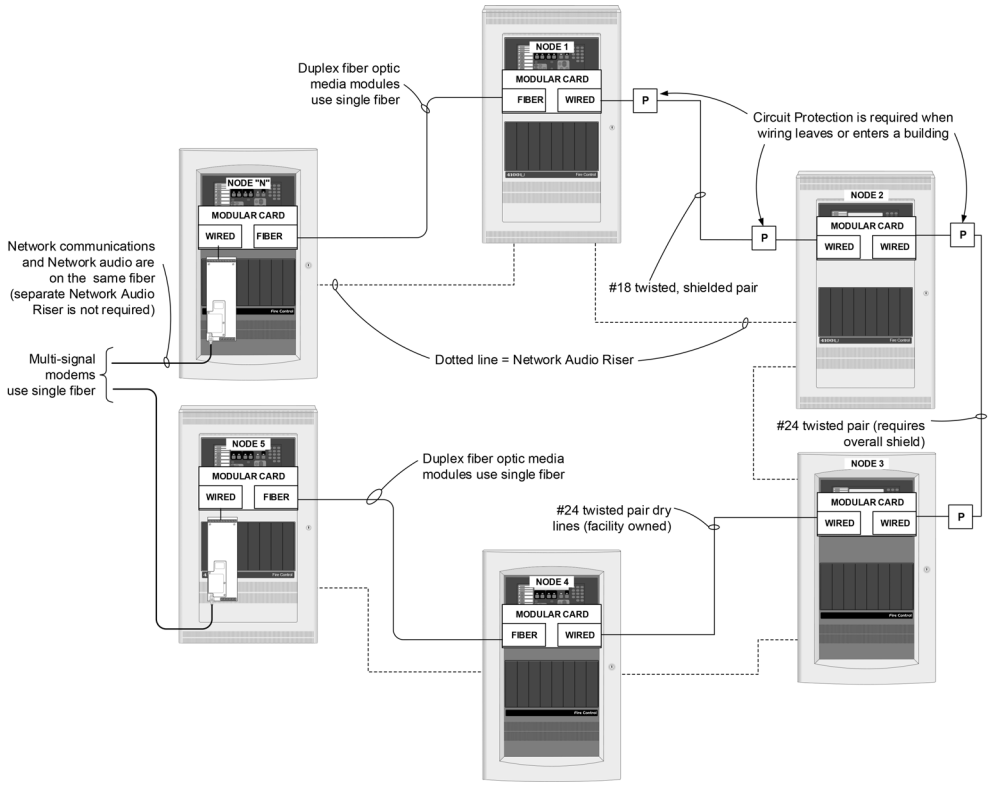

Figure 2: 4120 network communications options reference

Notes:

1. Refer to NFPA 70 (NEC) or other applicable codes for shielded wiring and protective device requirements when wiring enters and leaves a building.
2. For additional details on network audio requirements, refer to datasheet *S4100-0034*.

Multiple loop network operation using a TrueSite Workstation or Incident Commander

When extensive network expansion or interconnection of existing separate networks is required, up to seven 4120 network loops may be interfaced using the TrueSite Workstation. Up to two network loops can be interfaced using the Incident Commander.

Each network loop is connected to its own network interface card, allowing the workstation to appear as a node in each individual loop. With the workstation as a network loop interface, information from all nodes on the network, up to seven loops, can be annunciated on a central workstation.

With a multi-loop network connection, the TrueSite Workstation and Incident Commander are member nodes of each network loop with up to 98 additional nodes per loop. This allows up to 686 total nodes and the TrueSite Workstation Server, 687 in total, to be interconnected.

Multiple-loop 4120 and ES Net networks

A TrueSite Workstation node can attach to as many as seven network loops; up to one ES Net loop and six additional 4120 loops, or up to seven 4120 loops. An Incident Commander node can attach to as many as two network loops; up to one ES Net loop and one additional 4120 loop, or up to two 4120 loops.

Multi-loop operation features

Improved survivability

- Individual network loops operate independently
- In the event of loss of one or more loops, remaining loops continue to operate

Loop independence

New loops can be added without impacting existing loops

Assists with phased-in system expansion

- Each loop can be installed as a stand-alone network allowing local node programming to evolve as required
- When construction or renovation reaches completion, loops can be consolidated for coordinated facility protection

TrueSite Workstation hardware requirements

- Each loop requires a dedicated network interface card with media modules, as required.
- A maximum of seven network interface cards are allowed per workstation

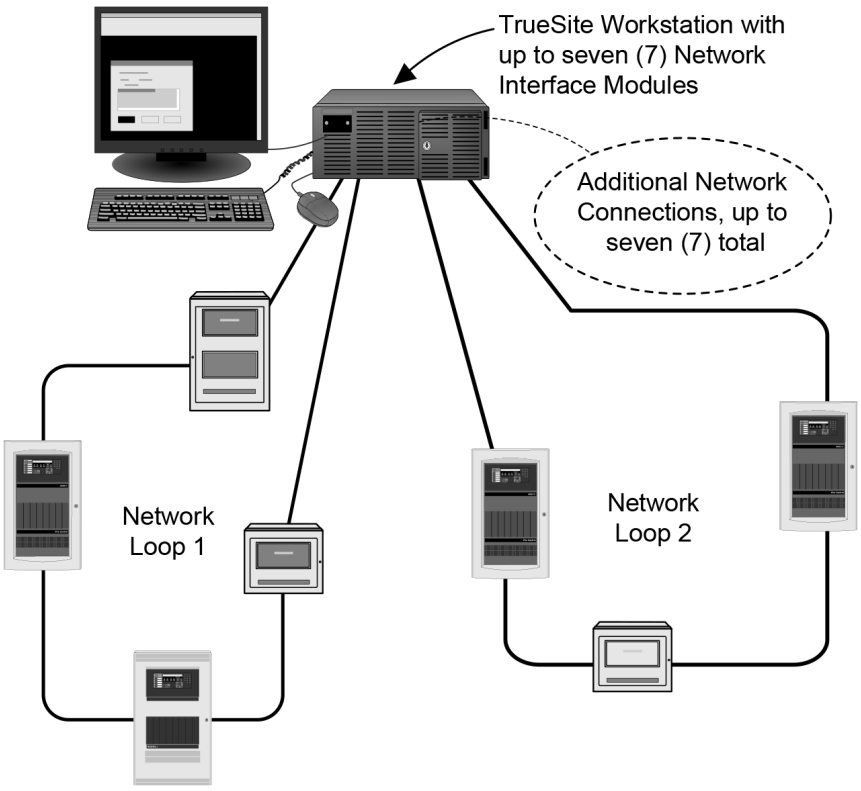

Figure 3: Typical interface of multiple network loops using a TrueSite Workstation

Multiple building 4120 network example

Multiple building/campus network

Multiple building 4120 network example represents a multiple building/campus network with duplicate InfoAlarm network display unit (NDU) locations. The East security office might normally be the master command center in the event of an emergency while the west security office can take control if needed.

Hub node function using physical bridge modules

The east security office NDU also performs as a basic hub node, supporting a star topology via physical bridge modules, and allowing the two panel network of the research and development loop to connect to the main network loop. Physical bridge modules allow a variety of other network connections. Refer to datasheet *S4100-0057* for additional information.

Network oversight

System activity recording occurs at both of the NDU locations with each capable of manually investigating and operating the same network points. Access to the operation is pass-code controlled such that only authorized operators have access to override the automatic operation.

Support for "In control" command centers

"In control" network operation allows a prioritization to establish which command center is in control.

"In control" functions include:

- Annunciation of which command center is "In control"
- Establishing whether command centers have equal access to control or are prioritized
- Allowing a "Request control" command to be accepted where a specific command center takes control over other equal priority command centers, typically due to the location of the incident of concern

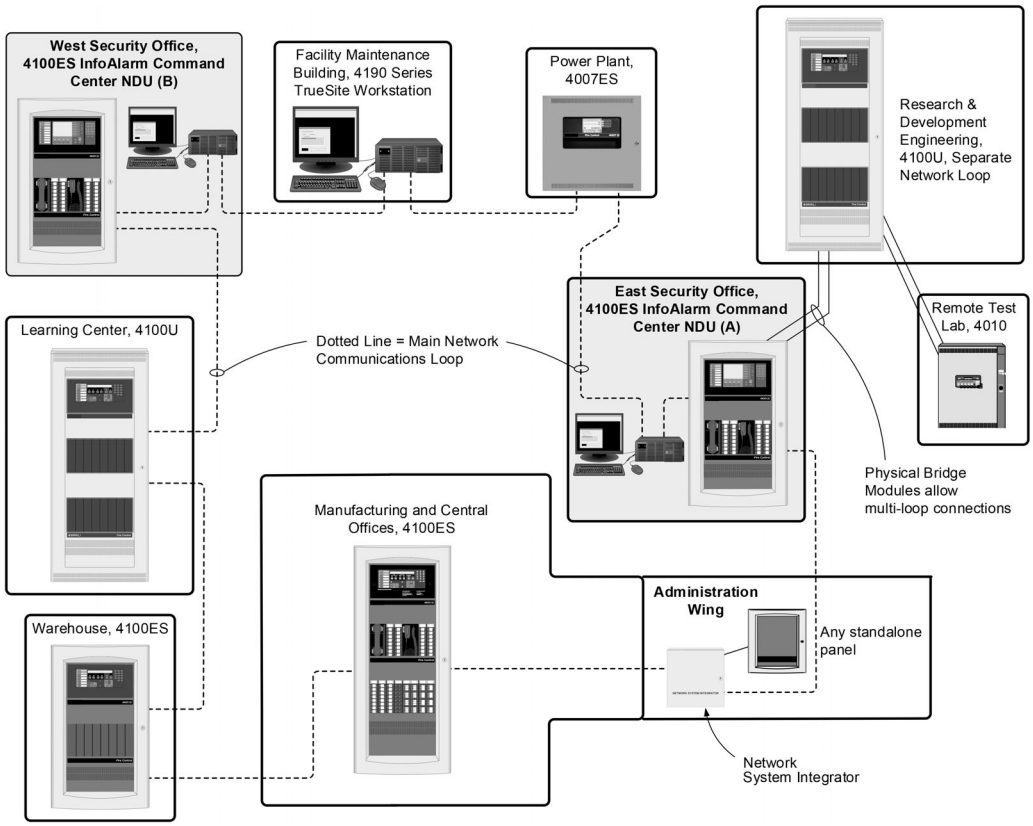

Figure 4: Multiple building 4120 network application

4120 network high rise audio example

Fire alarm network principles apply equally to high rise applications. For the example shown in Figure 5, a wired network communications link is paired with a wired audio riser.

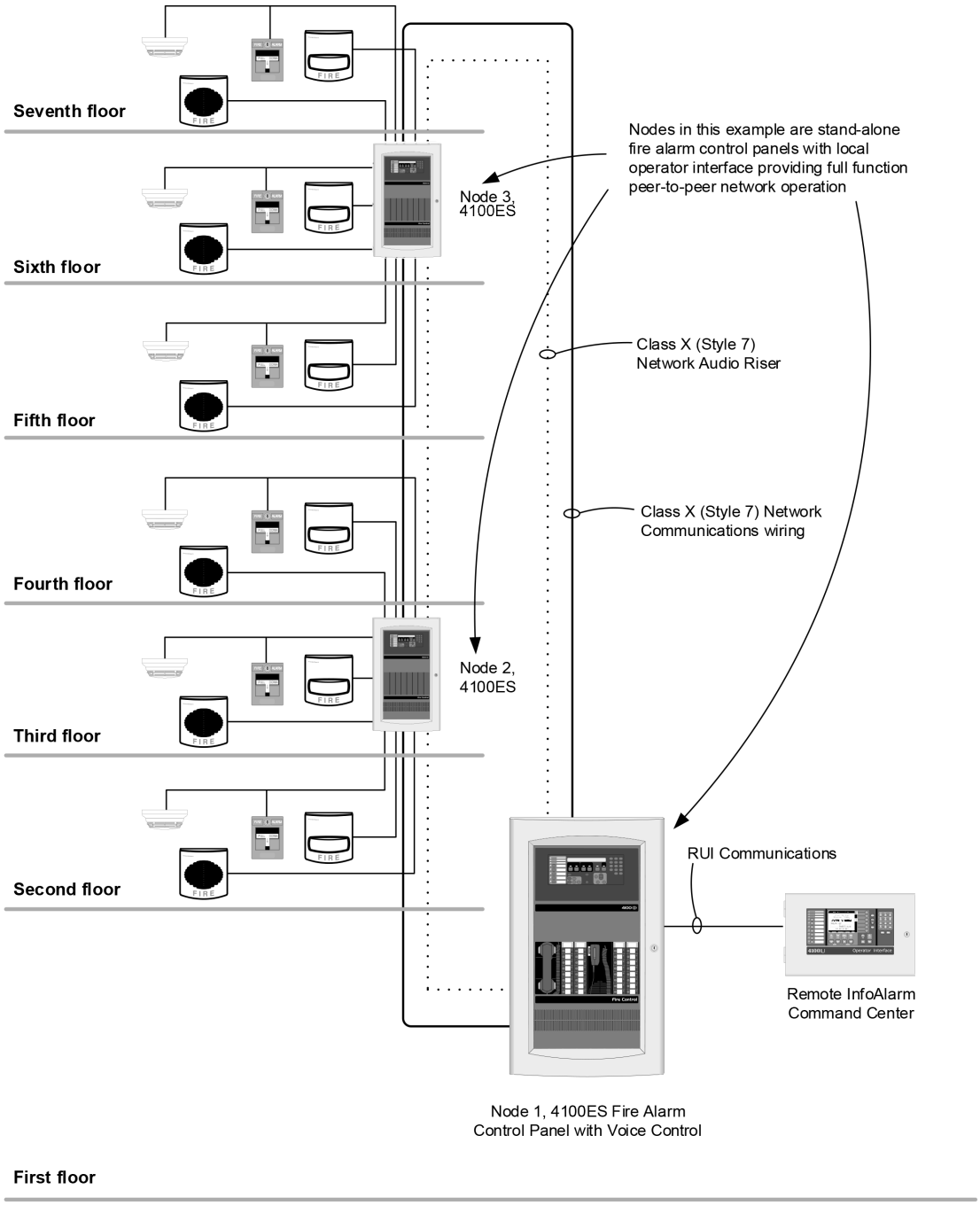

Figure 5: Network high rise audio example

Multiple signal fiber optic modem example

Network interconnection flexibility

Multiple communication signal fiber optic modems provide the ability to communicate 4120 network information and network audio information over a single fiber. Additionally, they also can provide a variety of interconnection capabilities functioning as a hub node to tie into star topology wiring and to interconnect network loops.

As shown below, a network can consist of both Class B (Style 4) and Class X (Style 7) communications wiring depending on system requirements.

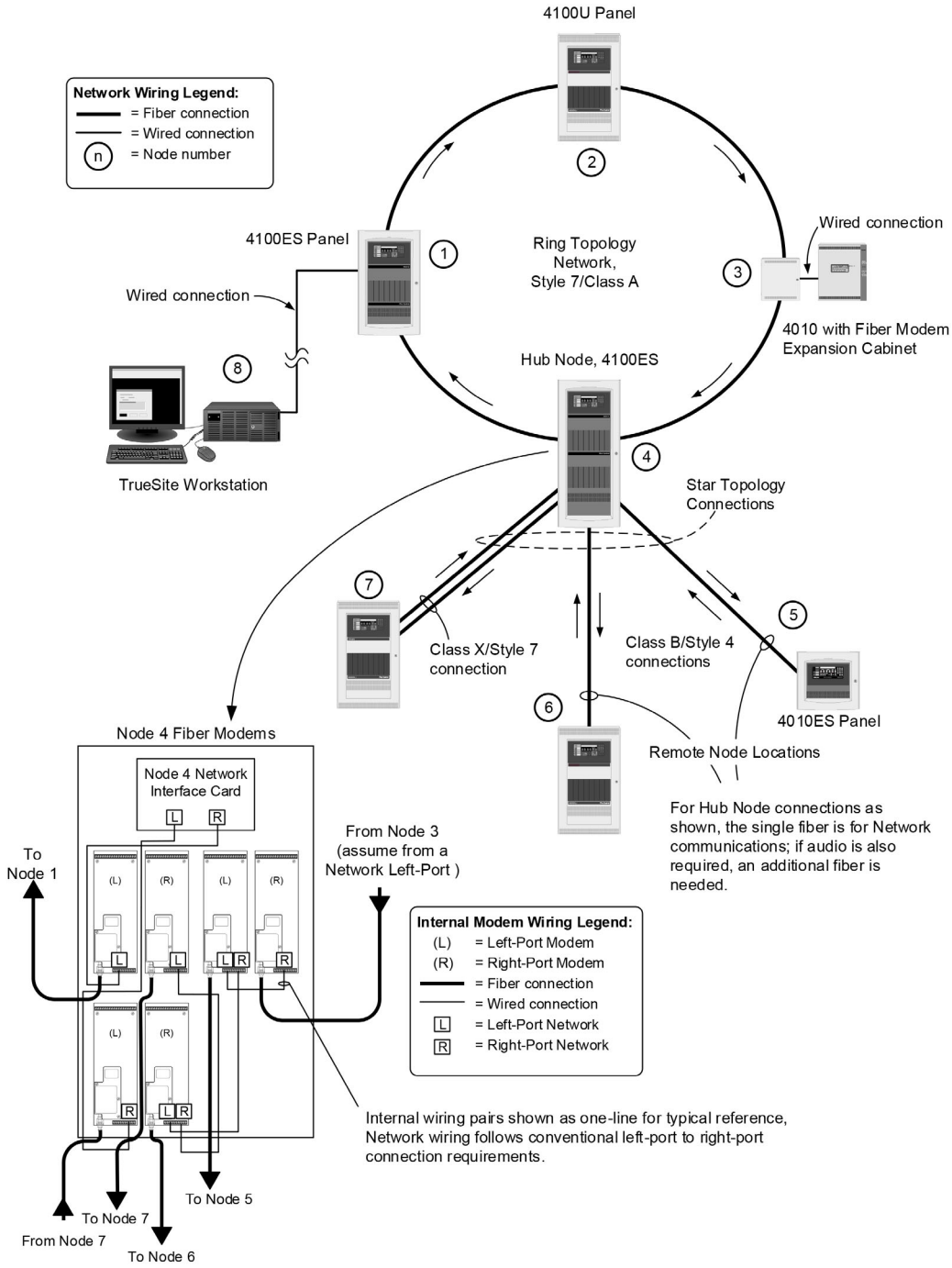

Figure 6: 4120 network connections using multiple signal fiber modem communications

Note: This arrangement is shown for reference only. Alternate interconnections are detailed in Installation Instructions 579-831.

4120 fire alarm network example with multiple communication media

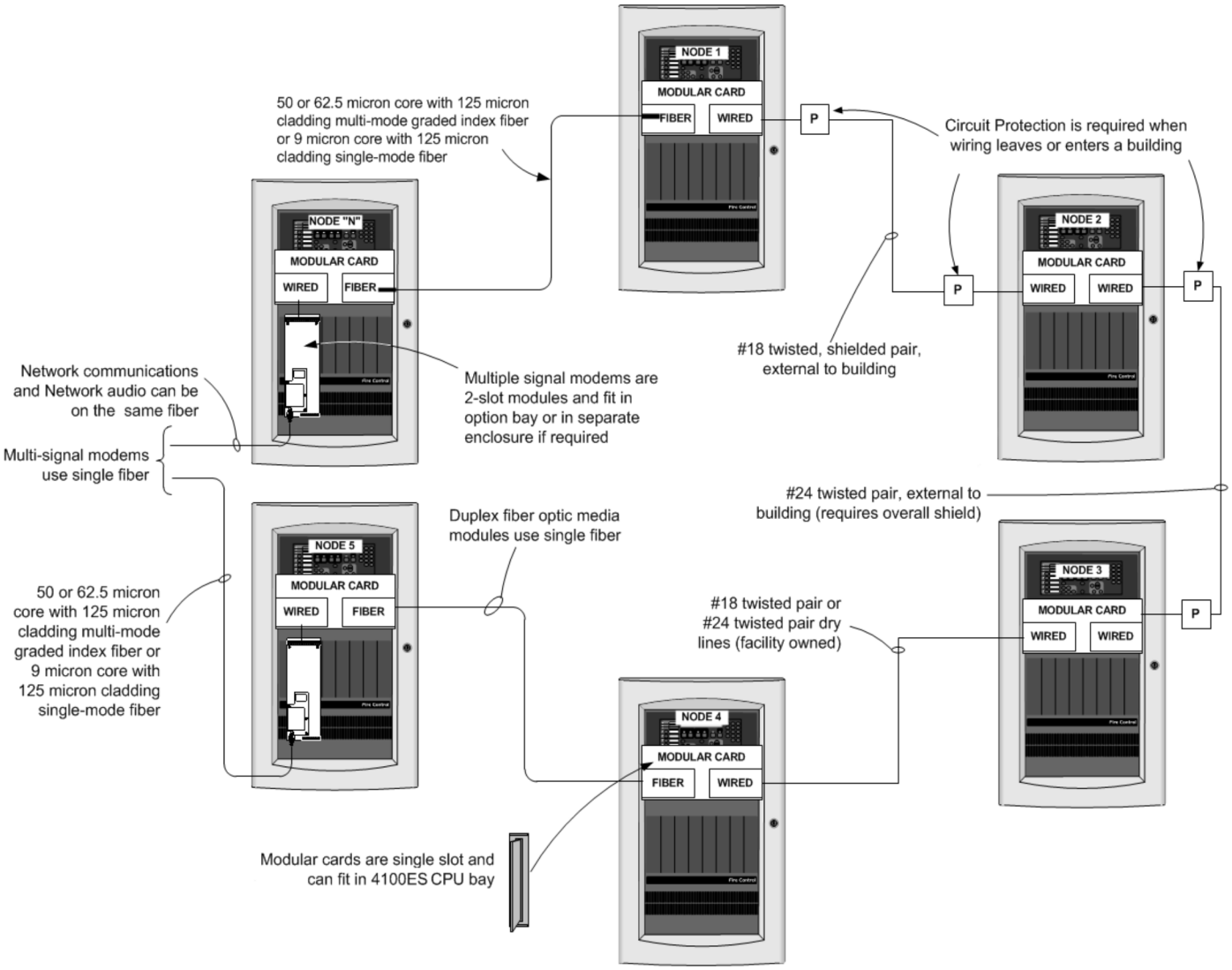

Figure 7: Fire alarm network example with multiple communication media

Note: Refer to NFPA 70 (NEC) or other applicable codes for shielded wiring and protective device requirements when wiring enters and leaves a building.

Multiple 4120 network loop connections using TCP/IP physical bridge modules

For additional 4120 network connection flexibility, TCP/IP physical bridge modules are available. Bridging between network loops or to a star configuration using these modules allows the connection to be through a local area network (LAN) connection.

Refer to datasheet *S4100-0029* for additional TCP/IP physical bridge module details.

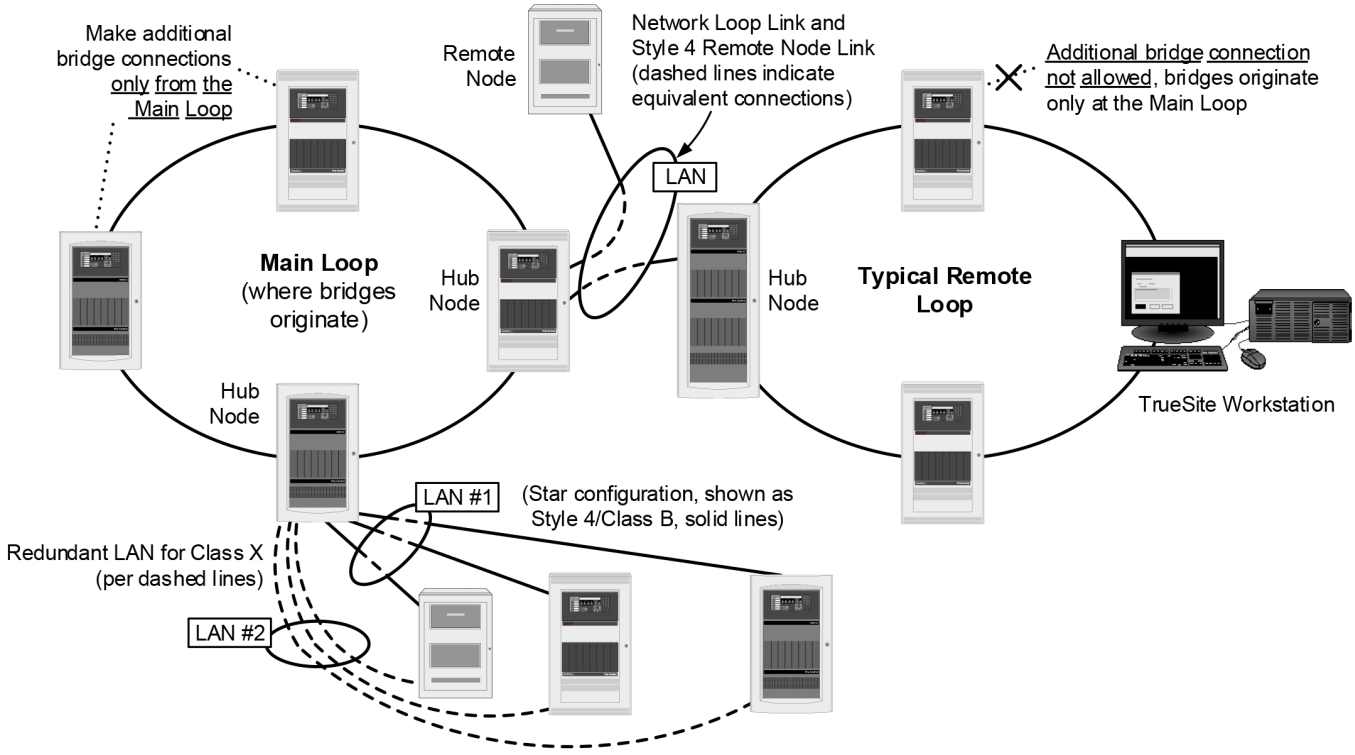

Figure 8: Multiple loop 4120 network with TCP/IP modems

4120 network communications equipment selection reference

Table 1: Network interface cards for fire alarm control units and TrueSite Workstation

Product	Model	Description	Size	Alarm/Supv.	Notes
4100ES/4100U	4100-6078	Modular network interface for master controller	One slot	46 mA	Network interface cards require up to two media cards. Ordered separately, see below.
	4100-6061	Modular network interface for redundant master controller			
TrueSite Workstation	4190-6061	Modular network interface, PCI slot card	One PCI slot	46 mA	
4007ES	4007-9810	Modular network interface	Block L	30 mA	
4010ES	4010-9922	Modular network interface	Two vertical blocks	30 mA	

Table 2: Network media cards

Product	Model	Description	Transmission mode	Port	Alarm/Supv.	Notes
4007ES fiber media cards	4007-6301	4120 duplex fiber media card for the 4007ES	Single-mode	Left	55 mA	Mounts on modular network interface cards listed above. Maximum of one left port and one right port duplex fiber media card for each modular network interface card. Field connections require left port to right port pairing. Order fiber media service kits for retrofit jobs where ST connectors are already installed (see below for service kit ordering information, see install document 579-1238 for additional installation details).
	4007-6302			Right	55 mA	
	4007-6303		Multi-mode	Left	55 mA	
	4007-6304			Right	55 mA	
4010ES/4010 fiber media cards	4010-6301	4120 duplex fiber media card for the 4010/4010ES	Single-mode	Left	55 mA	
	4010-6302			Right	55 mA	
	4010-6303		Multi-mode	Left	55 mA	
	4010-6304			Right	55 mA	
4100ES/4100U fiber media cards	4100-6301	4120 duplex fiber media card for the 4100ES/4100U	Single-mode	Left	55 mA	
	4100-6302			Right	55 mA	
	4100-6303		Multi-mode	Left	55 mA	
	4100-6304			Right	55 mA	
TrueSite Workstation fiber media cards	4190-6301	4120 duplex fiber media card for the TrueSite Workstation	Single-mode	Left	55 mA	
	4190-6302			Right	55 mA	
	4190-6303		Multi-mode	Left	55 mA	
	4190-6304			Right	55 mA	
Wired media cards	4100-6056	Wired media card for 4100ES/4100U/NSI			55 mA	Mounts on 4100-6078 or 4100-6061 modular network interface; also used with network system integrator
	4190-6036	Wired media card for the TrueSite Workstation			55 mA	Mounts on 4190-6061 modular network interface
	4010-9818	Wired media card for the 4010/4010ES			55 mA	Mounts on 4010-9817 or 4010-9922 modular network interface
	4007-9813	Wired media card for 4007ES			55 mA	Mounts on 4007-9810 modular network Interface

Table 3: Duplex fiber media card service kits

Install type	Order number	Description
62.5/125 µm installations	650-2013	For retrofit jobs where multi-mode fibers with ST connectors are already installed. Includes one left port and one right port 4120 multi-mode duplex fiber media cards, two ST to SC 18 in (45.7 cm) multi-mode fiber media patch cords, two ST-ST couplers, two wire clamps, and two insulating sleeves.
50/125 µm installations	650-2014	

Note: Fiber optic media cards must be of the same type on each end of the fiber link. When replacing a media card with a different type, replace the card on the other side of the link as well.

Table 4: 4120 network options

Model	Control Unit	Description	Size	Alarm/Supv.
4100-6047	4100ES	Building network interface card (BNIC), refer to datasheet *S4100-0061* for details	Two blocks	291 mA
4100-6055	4100ES	Network access dial-in service modem, mounts to 4100-6078 or 4100-6061 modular network interface card, requires telephone line connection	N.A.	60 mA
4010-9914	4010ES	Building network interface card (BNIC), refer to datasheet *S4100-0061* for details	Two blocks	236 mA

Wired media module distance specifications

The wired media module distance specifications in Table 5 are for media modules 4010-9818, 4100-6056, 4190-6036, or 4007-9813.

Table 5: Wired media module distance specifications

Wire size and specifications	Data rate (baud)	Distance	Distance note
18 AWG Unshielded Twisted Pair (UTP); maximum of 58 pF/ft, (190 pF/m) between conductors; shielded cable is allowed; see note below.	9600	17,000 ft (5.4 km)	Distance is with or without isolated loop protector or over-voltage protectors.
	57.6 k	10,000 ft (3 km)	
24 AWG Telephone cable Unshielded Twisted Pair (UTP); maximum of 22 pF/ft (72.2 pF/m) between conductors; overall shielded cable is allowed; see note below.	9600	12,000 ft (3.65 km)	
	57.6 k	7,000 ft (2.13 km)	

Note: Shielded cable and circuit protection is required when wiring leaves the building.

Duplex fiber media module specifications

Table 6: Duplex fiber optic media module specifications

Specification		Rating	
Compatible fiber	Single mode	Nominal 9/125 µm	
	Multi-mode	50/125 µm or 62.5/125 µm graded index	
Fiber connector		Type SC	
Allowed fiber connections		No limit	
Transmit and receive wavelengths	Single-mode media card	Port A: Transmit = 1310nm, Receive = 1550nm Port B: Transmit = 1550nm, Receive = 1310nm	Optical launch power; -9 dBm (126 µW) minimum, -3 dBm (501 µW) maximum
	Multi-mode media card	Port A: Transmit = 1310nm, Receive = 1550nm Port B: Transmit = 1550nm, Receive = 1310nm	Optical launch power; -8 dBm (159 µW) minimum, 0 dBm (1000 µW) maximum
Transmission distances for single-mode fiber		Maximum distance = 82,000 ft (25km) Maximum total attenuation = 22 dB	
Transmission distances for multi-mode fiber		Maximum distance = 16,400 ft (5km) Maximum total attenuation = 18 dB	

Table 7: Duplex fiber optic media module distance specifications

Fiber type	MIFL	Power margin	Safety margin	Maximum distance	Power budget	Coupler/splice loss
Multi-mode 50/125 or 62.5/125, numerical aperture = 0.275	1.5 dB/km at 1300nm	15 dB	-3 dB	16400 ft (5 km)	18 dB	.75dB max for each mated pair connection .30dB max for each fusion splice
Single-mode 9/125, numerical aperture = 0.2	1 dB/km at 1310nm	19 dB	-3 dB	82000 ft (25 km)	22 dB	

The duplex fiber optic media module distance specifications in Table 7 are for media modules 4007-6301, 4007-6302, 4007-6303, 4007-6304, 4010-6301, 4010-6302, 4010-6303, 4010-6304, 4100-6301, 4100-6302, 4100-6303, 4100-6304, 4190-6301, 4190-6302, 4190-6303, and 4190-6304.

Fiber media notes

1. **Fiber type for duplex fiber optic**: Cable specifications are for 50 or 62.5 micron core with 125 micron cladding multi-mode graded index fiber or 9 micron core with 125 micron cladding single-mode fiber
2. **MIFL**: maximum individual fiber loss. Numbers shown are industry standard reference; refer to specific cable for exact specifications.
3. **Distance**: The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss and power margin), or the maximum distance listed, whichever is smaller.
4. **Power budget**: Use attenuation measurements at the following wavelengths: Multi-mode at 1300nm, Single-mode at 1310nm

Multiple signal fiber optic modem specifications

Refer to datasheet *S4100-0049* for multiple signal fiber optic modem details.

Acceptance test requirements for fiber optic installations

An initial acceptance test of each fiber link shall be performed in accordance with NFPA 72, Chapter 14 Inspection, Testing, and Maintenance, or other applicable local code, requirements. A fiber link is defined as all fiber segments, including patch cords, which create a fiber path from one fiber media board to another. Test result data must meet or exceed ANSI/TIA 568-C.3, or newer, Optical Fiber Cabling Components Standard related to fiber optic lines and connection/splice losses and the manufacturer's published specifications.

1. OTDR launch and receive cables of appropriate length shall be used. If a single cable is used, each link shall be tested in both directions.
2. Multi-mode fiber links shall be measured at 850 nm and 1300 nm.
3. Single mode fiber links shall be measured at 1310 nm and 1550 nm.

Compatible 4120 network products

4120 network nodes include the following Simplex fire alarm products:

- 4100ES, 4100U, 4007ES, 4010ES, and 4010 series fire alarm control units and 4100ES or 4100U NDU's
- 4190 Series TrueSite Workstations and Incident Commanders
- 4190 Series Network System Integrators
- Legacy 4120 Series control units, NPU, and 2500 NDU; 4190 Series IMS and GCC systems; 4020, 4002 Series systems and retrofitted 4100/4100+ and 2120 systems

Additional 4120 network reference

Table 8: Additional 4120 network reference

Subject	Datasheet
4007ES Hybrid Fire Alarm Control Unit	*S4007-0001*
4007ES Fire Alarm Control Unit	*S4007-0002*
4010ES Fire Alarm Control Unit	*S4010-0004*
4010ES Fire Alarm Control Unit (International)	*S4010-0006*
4010ES Addressable Basic Control Unit with IDNAC	*S4010-0011*
4010ES Addressable Basic Control Unit with IDNAC (International)	*S4010-0012*
TCP/IP Physical Bridge Modules for 4120 Networks	*S4100-0029*
Multiple Signal Fiber Optic Modems and Accessories for 4120 networks	*S4100-0049*
Physical Bridge Modules for 4120 Networks	*S4100-0057*
Building Network Interface Card (BNIC) Models	*S4100-0061*
4100ES Basic Units with ES-PS Power Supplies	*S4100-1031*
NDU with ES-PS Power Supplies for 4120 Network	*S4100-1036*
TrueSite Workstations	*S4190-0016*
TrueSite Incident Commander	*S4190-0020*
TrueSite Graphic Annunciator	*S4190-0022*
TrueSite Graphic Annunciator Incident Commander	*S4190-0023*
Truesite Mobile Client	*S4190-0024*
Network Systems Integrator for ES Net and 4120 networks	*S4190-0026*

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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.

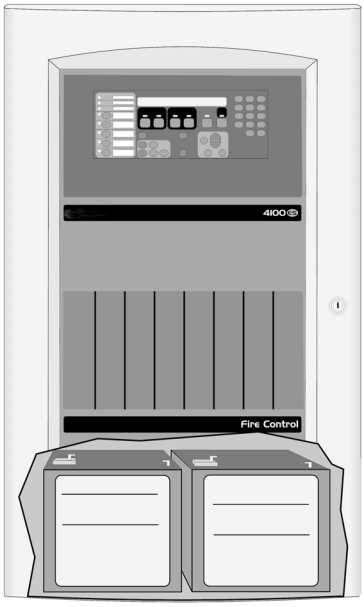

Figure 1: Compatible sealed lead-acid batteries inside an FACU cabinet

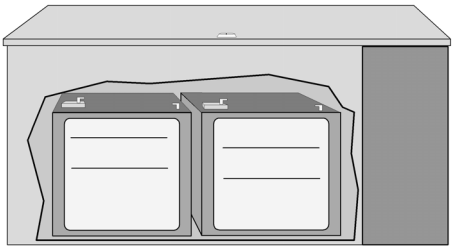

Figure 2: A remote battery cabinet for larger battery requirements

* 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.

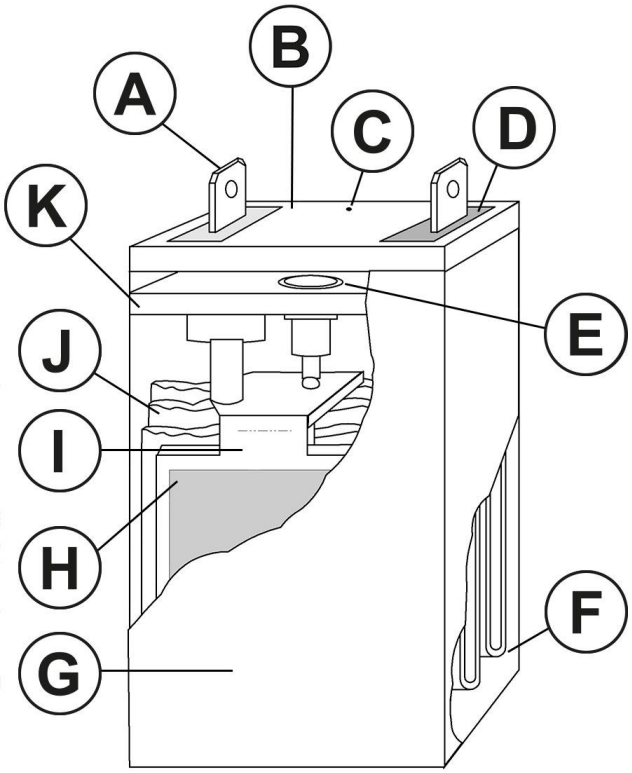

Figure 3: Battery contruction reference

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				

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Simplex

Multi-Application Peripherals

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

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

Features

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

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

For use with following Simplex control panels:

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

Model 4090-9001:

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

Model 4090-9051:

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

IDNet communications provides current limited monitoring:

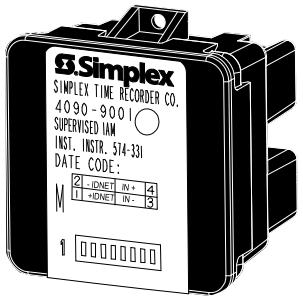
- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

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

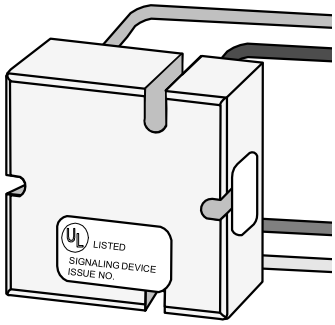
- Contact closure status can be tracked
- Momentary contact closure conditions can be selected at the panel to be latched or tracked (not available with the 2120 CDT)

UL listed to Standard 864

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



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



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

Description

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

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

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

Operation

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

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

Current Limited Operation Applications

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

IAM Product Selection

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

Optional Trim Plates and Mounting Bracket for Model 4090-9001

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

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

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

Specifications

Electrical

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

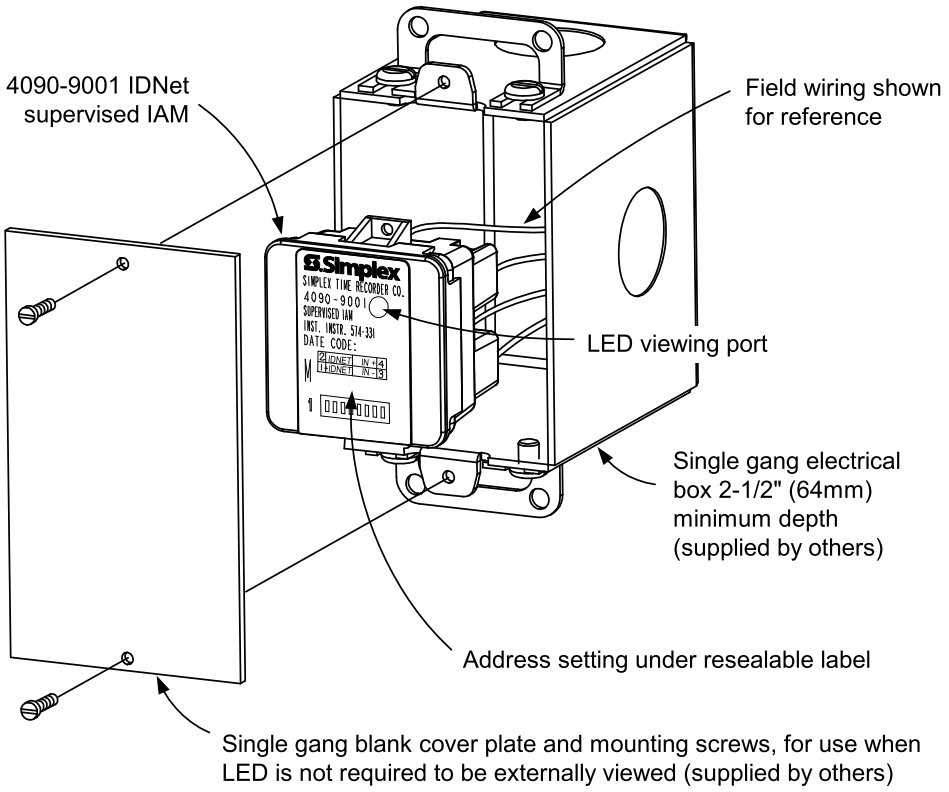
Wiring Distances

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

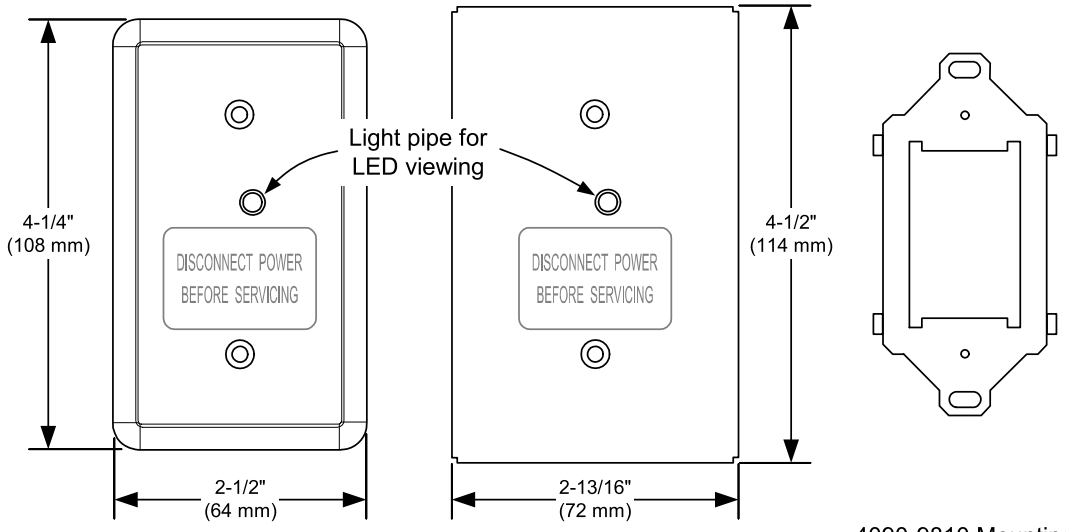
Mechanical

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

Mounting Information



Mounting Reference, Single Gang Blank Cover Plate



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

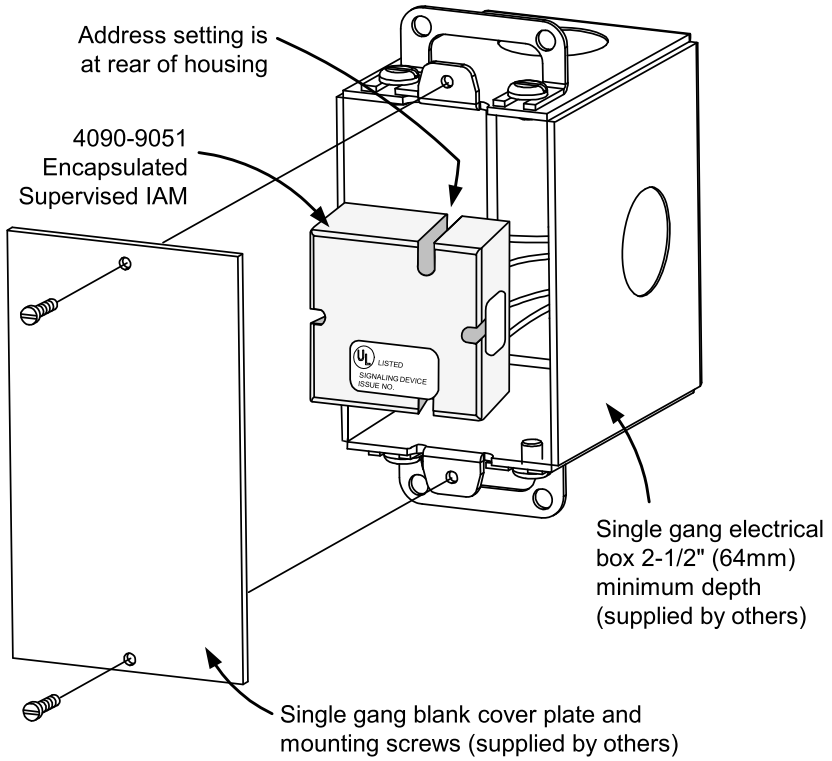
4090-9807, Trim plate for surface mounted box

4090-9810 Mounting bracket, ordered separately

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

Optional Trim Plates and Mounting Bracket for Visible LED

4090-9051 Mounting Information



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Simplex

*UL, ULC Listed; FM, NYC Fire Dept Approved**

4007ES Fire Control Panels

Automatic Extinguishing, Deluge and Preaction Sprinkler System Releasing Control

Features

Releasing control using the Simplex 4007ES Fire Alarm Control Panel to provide:**

- Coverage for multiple areas of Automatic Extinguishing Release and/or Deluge and Preaction Sprinkler System Release including audible escalation of events
- Control of compatible Listed/Approved 24 VDC automatic control actuators
- Releasing appliance circuits (RACs) by connecting Notification appliance circuits (NACs) to Suppression Release Peripherals for actuator supervision and control
- Additional actuator circuit control NACs are available using 4009 IDNet Addressable NAC Extenders with Suppression Release Peripherals

Audible Escalation of Events:

- Temporal or 20 bpm march time pattern for first cross-zone alarm; 120 bpm march time pattern to indicate releasing timer active; On steady to indicate releasing timer expired and actuator is activated
- Requires NACs dedicated to conventional horn control (not SmartSync operation) with strobes controlled on separate NACs

4009 IDNet NAC Extenders provide:

- Up to eight NACs for notification requirements and input to suppression release peripherals, controlled via IDNet

4090-9005/4090-9006 Suppression Release Peripheral (SRP) with Dual Command Control:

- Dual command control requires IDNet and an activated NAC to initiate release
- NAC provides wiring supervision to the actuator including monitoring of coil continuity and short circuit supervision to the coil supervision module

Suppression Release Peripheral control features:

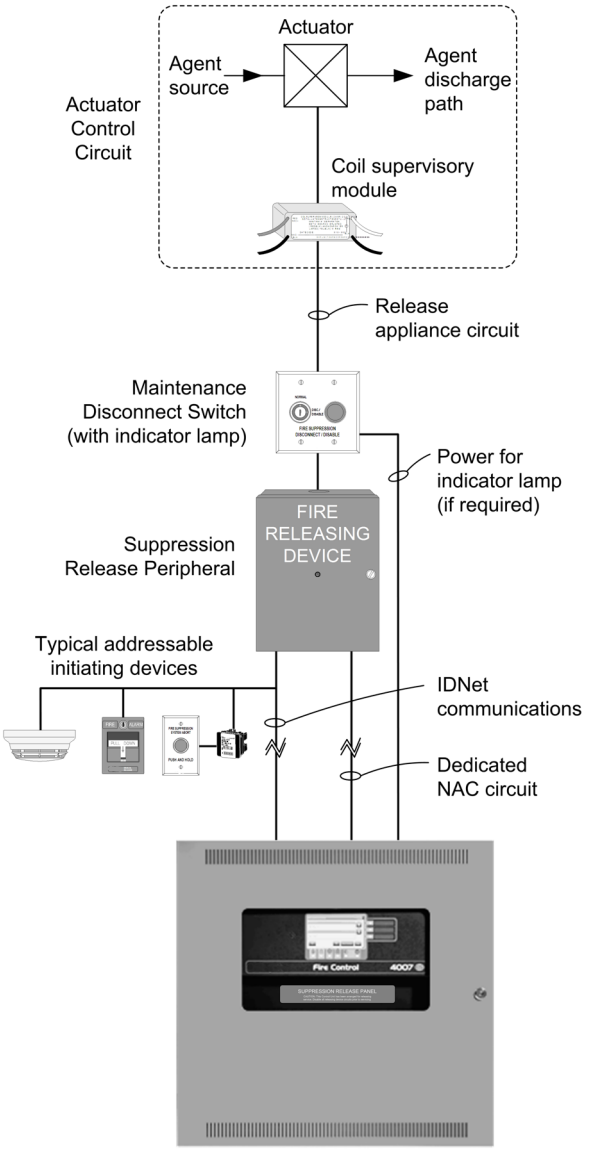
- An on-board DC-DC regulator compensates for voltage drops to the peripheral and ensures proper control circuit voltage over a wide operating range
- Provides a single RAC for control of actuators for up to 2 A using a 3 A NAC input (1 A using a 2 A NAC input)

Related system components:

- 4007ES Series control panel with Releasing Appliqué
- Dedicated NAC output from 4007ES (or compatible NAC Extender)
- Coil supervision module, one per RAC
- Maintenance Switch, one per RAC
- Abort Switch

4007ES Listings reference:

- UL 864 - Control Units, System (UOJZ); Control Unit Accessories, System, Fire Alarm (UOXX); ; Control Units, Releasing Device Service (SYZV)
- UL 2017 - Emergency Alarm System Control Units (CO detection), (FSZI)
- ULC-S559 - Central Station Fire Alarm System Units (DAYRC)
- ULC-S527 - Control Units, System, Fire Alarm (UOJZC); Control Unit Accessories, System, Fire Alarm (UOXXC); Control Units, Releasing Device Service (SYZVC)



4007ES Control Panel with Suppression Release Appliqué

Figure 1: 4007ES Series Releasing Control Typical Block Diagram

Introduction

When combined with Suppression Release Peripherals, the 4007ES series fire alarm control panel provides actuator supervision and control for use in automatic extinguishing, and deluge or preaction releasing systems. Hazard area initiating and notification devices are controlled using either conventional or addressable circuits per standard 4007ES capabilities. The necessary releasing system logic is implemented within the 4007ES control panel as required for the local application.

* NYC Fire Dept COA #6191A. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster. ** Release Control operation described in this document is also available with 4007ES Control Panels with software revision 3.03 or higher. Refer to data sheet S4007-0001 for model 4007ES control panel details including IDNet communications information.

Automatic Extinguishing Release Systems

These systems automatically activate electrically controlled actuators for the release of a fire extinguishing agent (such as dry chemical, water spray, foam, CO2, or clean agent) in response to fire detection device inputs as determined by programming of the host fire alarm control panel.

Automatic Extinguishing Release System Panels are required to have a minimum of 24 hours of standby power. Initiating devices must be Listed/Approved for the application, and may be wired either Class A or B. Control actuators must be electrically compatible with the control panel circuits and power supplies, and are wired Class B to provide coil supervision.

Deluge or Preaction Sprinkler Systems

These systems automatically activate water control actuators in response to fire detection device inputs.

Deluge Sprinkler Systems employ open sprinkler heads and provide water flow when the fire detection system activates a common automatic water control actuator. They are used to deliver water simultaneously through all of the system sprinkler heads. This type of system is applicable where the immediate application of large quantities of water over large areas is the proper fire response.

Preaction Sprinkler Systems are similar to deluge systems except that normally closed sprinkler heads are used and supervisory air pressure is maintained in the pipe. Operation requires both an activated sprinkler head and an activated fire alarm initiating device with specific programming determined at the host fire alarm control panel.

Releasing System Requirements

1. **Releasing actuators** are controlled from a Suppression Release Peripheral (4090-9005 or 4090-9006). Connections are 2-wire, Class B releasing circuits **with only one 24 VDC actuator per circuit**. Where applicable, two, 12 VDC actuators in series, or one 12 VDC actuator with manufacturer supplied resistor may be used (refer to the actuator manufacturer's installation documentation for additional details and requirements).
2. **Coil Supervision Module 2081-9046** must be wired electrically before the actuator and located in the actuator wiring junction box. The connected RAC provides continuity supervision of the actuator coil and wiring and provides short circuit supervision to the coil supervision module.
3. **Cross-zoning or other alarm initiation logic** per system requirements, is to be implemented by programming at the fire alarm control panel.
4. **UL Listed Automatic Extinguishing Releasing operation** requires that: battery standby must be a minimum of 24 hours with 5 minutes of alarm and that listed actuators are used, refer to Suppression Release Peripheral Wiring Reference.
5. **FM Approved Automatic Extinguishing Release** requires secondary standby to be a minimum of 24 hours with 5 minutes of alarm. Actuators must be electrically compatible.
6. **FM Approved Deluge and Preaction Sprinkler operation** requires that: initiating device circuits be Class A and wired to Listed/Approved devices; standby power capacity must be a minimum of 90 hours with 10 minutes of alarm; and that compatible Automatic Water Control Valves must be used. (Refer to actuator list in the Specifications section.)
7. **Maintenance Switches**, one per RAC, are required per NFPA 72, the National Fire Alarm and Signaling Code to allow the system to be tested or serviced without actuating the fire suppression systems. Their use may not be allowed in some jurisdictions, always confirm local requirements. When used, Simplex Maintenance Switches are required to ensure that operation initiates a supervisory condition.
8. **Abort Switches** are available when abort operation is required. When used, connect to an addressable Supervised IAM model 4090-9001 or similar addressable adapter module. The Simplex abort switch and the IAM mount in a single gang box, 2-1/2" minimum depth.
9. **Addressable Manual Releasing Stations** are used to initiate activation of the releasing actuators with the appropriate time delay implemented by the fire alarm control panel.
10. **Notification Requirements.** Each hazard area typically requires general audible and visible fire alarm notification and additional dedicated NACs for area releasing status notification. Suppression releasing is compatible with conventional panel mounted NACs as well as for use with the 4009 IDNet NAC Extender.
11. **Additional Suppression Release Peripheral Reference.** Refer to Installation Instructions 579-385.

Additional Releasing Systems Reference

For additional information, refer to Factory Mutual Research Corporation (FMRC) "FMRC Approval Guide," FM Approval standard "Automatic Releases for Preaction and Deluge Sprinkler Systems."

Please note that proper operation of releasing control systems requires that the system design, installation, and maintenance be performed correctly and in accordance with all applicable local and national codes, and equipment manufacturer's instructions. No liability for total system operation is assumed or implied.

Product Selection

Table 1: 4007ES Releasing Control System Modules

Model	Description		Reference
2081-9046	Coil Supervision Module		Required, one per RAC, mounts in the releasing actuator wiring junction box; see Specifications section for details
2080 Series*	Maintenance Switches		One per RAC; flush or surface mount; indicator lamp models require separate 24 VDC wiring
2080-9056*	Flush mount	Abort Switch	As required, connects via an IDNet addressable interface module; mounted on a single gang stainless steel plate; installation requires a single gang box, 2-1/2" (64 mm) minimum depth
2080-9057*	Surface mount		
* Refer to data sheet *S2080-0010* for Abort and Maintenance switch details.			

Table 2: Releasing Appliqués, Required for 4007ES Suppression Releasing Applications

Model	Description	
4007-9830	English	Suppression Releasing Appliqué; field applied
4007-9830CAF	French	

Table 3: Suppression Release Peripheral and Accessories

Model	Description	Reference
4090-9005	Basic Suppression Release Peripheral on mounting plate	Requires mounting box 2975-9227, ordered separately
4090-9006	Suppression Release Peripheral mounted in NEMA 1 red box; required for ULC listing	Includes LED indicator on front of door
2975-9227	NEMA 1 red mounting box; required for 4090-9005	These items are included with model 4090-9006
4090-9812	Red LED IDNet communications indicator option kit; mounts on door of 2975-9227 box	
Note: Refer to control panel programming manual 579-1167 for further information on suppression release panel programing.		

4007ES Hybrid Panel Releasing System One-Line Connection Reference

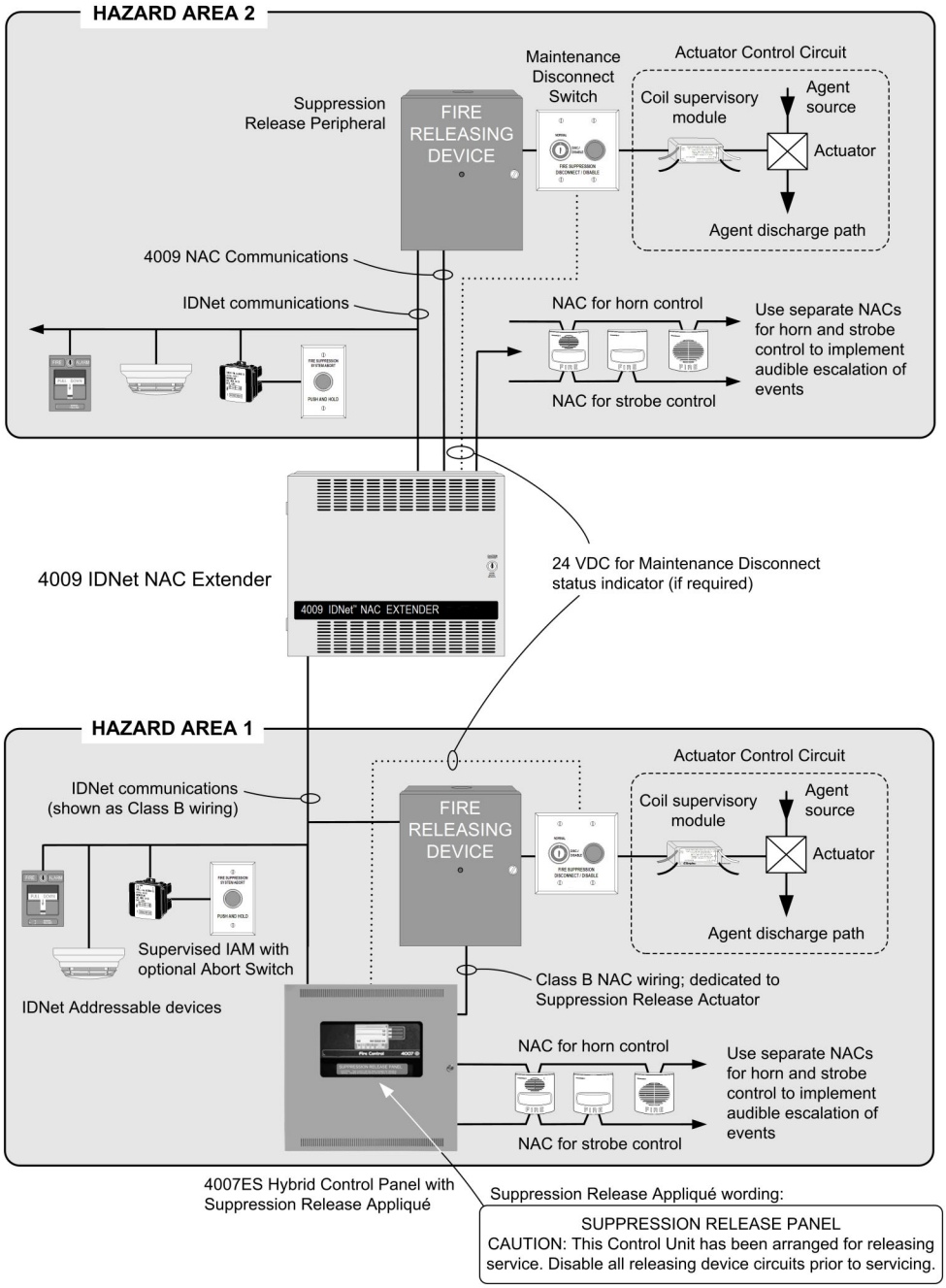


Figure 2: 4007ES Hybrid Panel Releasing System One-Line Connection Reference

4007ES Fully Addressable Panel Releasing System One-Line Connection Reference

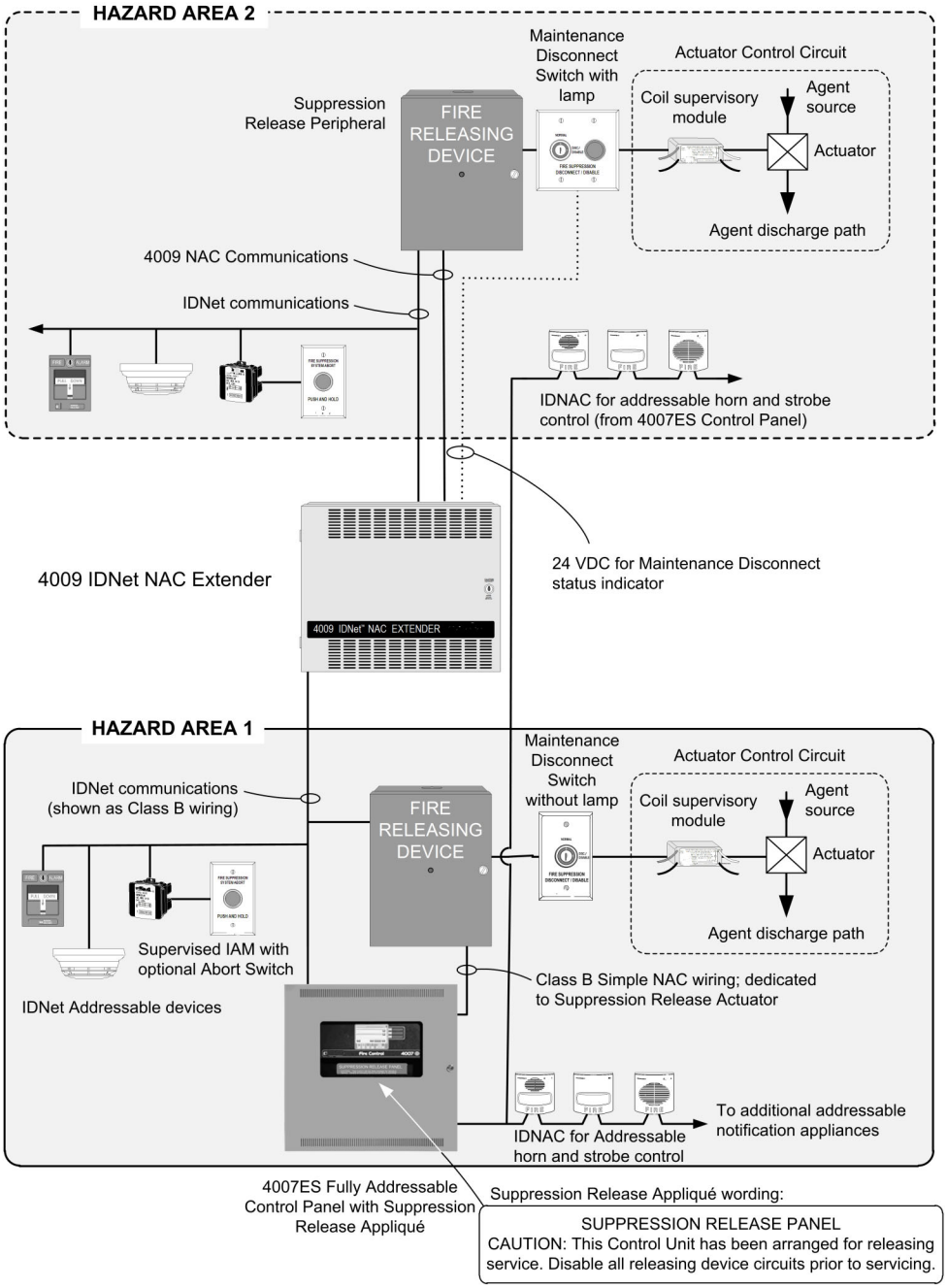


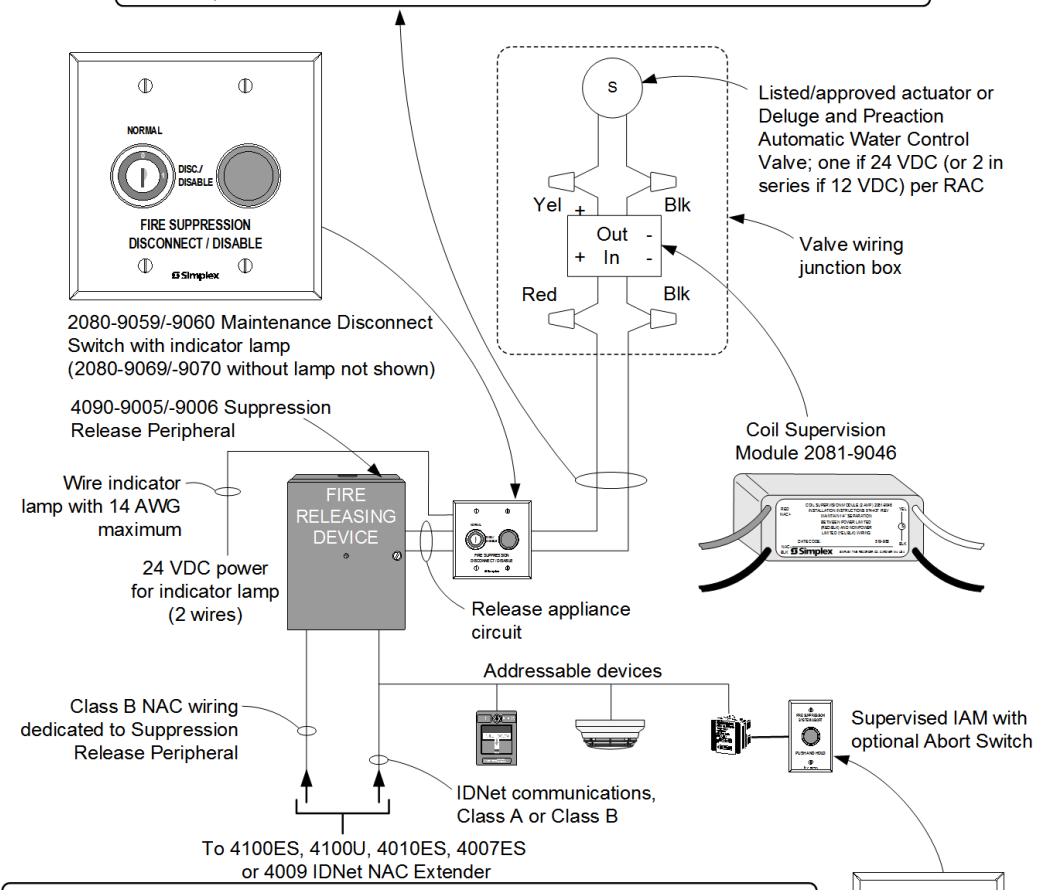
Figure 3: 4007ES Fully Addressable Panel Releasing System One-Line Connection Reference

Suppression Release Peripheral Wiring Reference

Maximum Release Appliance Circuit (RAC) Wiring Distances from Suppression Release Peripheral to the Valve Solenoid (based on a total drop of 0.6 V)

RAC Output Current (refer to solenoid rating)	Distance								Total Line Resistance
	18 AWG		16 AWG		14 AWG		12 AWG		
0.50 A	74 ft	23 m	118 ft	36 m	188 ft	57 m	300 ft	91 m	1.06 Ω
0.75 A	50 ft	15 m	79 ft	24 m	126 ft	38 m	200 ft	61 m	0.71 Ω
1.00 A	37 ft	11 m	59 ft	18 m	94 ft	29 m	150 ft	46 m	0.53 Ω
1.25 A	30 ft	9 m	47 ft	14 m	75 ft	23 m	120 ft	36.6 m	1.06 Ω
1.5 A	25 ft	7.6 m	39 ft	12 m	63 ft	19 m	100 ft	30.5 m	0.71 Ω
1.75 A	21 ft	6.4 m	34 ft	10 m	54 ft	16 m	85 ft	26 m	0.53 Ω
2.00 A	19 ft	5.8 m	30 ft	9 m	47 ft	14 m	75 ft	23 m	0.53 Ω

Metric wire equivalents: 18 AWG = 0.82 mm^2; 16 AWG = 1.31 mm^2; 14 AWG = 2.08 mm^2; 12 AWG = 3.31 mm^2



Maximum Notification Appliance Circuit (NAC) Wiring Distances to a Suppression Release Peripheral (0.5 A to 1.75 A drop is based on a total drop of 3.4V; 2 A drop is based upon a total drop of 1.2 V)

RAC Output Current (refer to solenoid rating)	Distance								Total Line Resistance
	18 AWG		16 AWG		14 AWG		12 AWG		
0.50 A	250 ft	76 m	399 ft	122 m	635 ft	194 m	1010 ft	308 m	3.58 Ω
0.75 A	167 ft	51 m	266 ft	81 m	423 ft	129 m	673 ft	205 m	2.39 Ω
1.00 A	125 ft	38 m	199 ft	61 m	317 ft	97 m	505 ft	154 m	1.79 Ω
1.25 A	100 ft	30 m	159 ft	48 m	254 ft	77 m	404 ft	123 m	1.43 Ω
1.5 A	84 ft	26 m	133 ft	41 m	212 ft	65 m	337 ft	103 m	1.19 Ω
1.75 A	72 ft	22 m	114 ft	35 m	181 ft	55 m	289 ft	88 m	1.02 Ω
2.00 A	25 ft	7.6 m	39 ft	12 m	63 ft	19 m	100 ft	30 m	0.36 Ω

Metric wire equivalents: 18 AWG = 0.82 mm^2; 16 AWG = 1.31 mm^2; 14 AWG = 2.08 mm^2; 12 AWG = 3.31 mm^2

Figure 4: Suppression Release Peripheral Wiring Reference

Specifications

Table 4: Suppression Release Peripheral 4090-9005 and 4090-9006 Specifications

Specification			Rating			
Communications			IDNet, one address			
RAC Output Rating	with 4007ES		2 A maximum	At nominal 24 VDC, regulated; refer to NAC Power Requirements for more detail		
	with 4009 IDNet NAC Extender		1 A maximum			
NAC Power Requirements		Voltage	16 to 32 VDC (nominal 24 VDC)			
Note:		Supervisory Current	No additional current required, circuit appears as standard end-of-line (EOL) NAC loading			
4007ES NACs are rated at 3 A; 4009 IDNet NAC Extender NACs are rated at 2 A, Extender expansion NACs are rated 1.5 A		Alarm Current Reference (RAC current = actuator current)	**RAC Current**	**NAC Current**	**RAC Current**	**NAC Current**
			0.5 A	0.845 A	1.25 A	2.14 A
			0.75 A	1.28 A	1.5 A	2.56 A
			0.87 A	1.5 A	1.75	3 A
			1 A	1.71 A	2 A	
Wire Connections			Screw terminals for input and output wiring, 18 to 12 AWG wire (0.82 mm² to 3.31 mm²)			
IDNet Wiring Distance Reference			Up to 2500 ft (762 m) from the IDNet source module			
			Up to 10,000 ft (3048 m) total Class B wiring distance including T-Taps			
			Compatible with Simplex 2081-9044 Overvoltage Protectors			
Dimensions			See installation reference in Compatible UL Listed Valves and Actuators			
Operating Temperature			32° to 120° F (0° to 49° C) indoor operation only			
Operating Humidity Range			10 to 90% RH at 90° F (32° C)			

Table 5: Coil Supervision Module 2081-9046 Specifications

Specification	Rating
Construction	Epoxy encapsulated
Dimensions	1-3/8" W x 2-7/16" L x 1-1/16" H (34 mm x 62 mm x 27 mm)
Wiring	18 AWG (0.82 mm²) wire leads, color coded
Current Rating	2 A Maximum; internally fused at 3 A, non-replaceable

Compatible UL Listed Valves and Actuators

Table 6: Compatible UL Listed Valves and Actuators

Manufacturer	Model Number	Electrical Ratings
ANSUL	AUTOMAN II-C Assembly (solenoid 17728; coil 25924)	24 VDC, 750 mA
	AUTOMAN II-C Explosion-Proof Releasing Device (solenoid 31492; coil 31438)	24 VDC, 750 mA
	AUTOMAN II-C Assembly (solenoid 68739; coil 25924)	24VDC, 750 mA
	Solenoid Electric Actuator (solenoid 73111; coil 73097)	24 VDC, 1 A
	*CV90 HF Electric Actuator 73327	24 VDC, 570 mA
	LP CO2 w/ASCO solenoid 422934	24 VDC, 442 mA
	LP CO2 double action 24 VDC solenoid 430948	24 VDC, 438 mA
	LP CO2 3-way selector valve solenoid 433419	24 VDC, 438 mA
	Electric Actuator 24 VDC solenoid 570537	24 VDC, 250 mA
LPG	Solenoid Electric Actuator (uses solenoid: Flow Control 609500/671S) Solenoid Coupling Assembly 21006401 (uses solenoid: Flow Control 609500/671S) Solenoid Coupling Assembly 21006402 (uses solenoid: Flow Control 609500/671S) LPG128/145/190/230-50/55 FM-200 valves (uses solenoid: Flow Control 609500/671S) LPG128-90UL iFLOW and FM-200 valve (uses solenoid: Flow Control 609500/671S)	24 VDC, 542 mA
Skinner	71395SN2ENJ1NOH111C2 (Skinner coil H111C2)	24 VDC, 420 mA
	73212BN4TN00NOC111C2 (Skinner coil C111C2)	24 VDC, 420 mA
	73212BN4TNLVNOC322C2 (Skinner coil C322C2)	24 VDC, 830 mA
	73218BN4UNLVNOH111C2 (Skinner coil H111C2)	24 VDC, 410 mA
	73218BN4UNLVNOC111C2 (Skinner coil C111C2)	24 VDC, 410 mA
ASCO	8210A107 (097617-005D coil)	24 VDC, 750 mA
	8210G207 (238310 coil)	24 VDC, 440 mA
	8211A107 (097617-005D coil)	24 VDC, 750 mA

Table 6: Compatible UL Listed Valves and Actuators

Manufacturer	Model Number	Electrical Ratings
	8262H182 (238910 coil)	24 VDC, 483 mA
	HV2628571 (23810 coil)	24 VDC, 442 mA
	HV2648581 (23810 coil)	24 VDC, 442 mA
	EF8210G001MBMO (238714 coil)	24 VDC, 450 mA
	R8210A107 (097617-005D coil)	24 VDC, 700 mA
	T8210A107 (097617-005D coil)	24 VDC, 700 mA
Pyro-Chem	ECH Electrical Control Head (551201)	24 VDC, 1700 mA
	Explosion-Proof Electric Actuator (570147)	24 VDC, 396 mA
	Removable Electric Actuator (570209)	24 VDC, 200 mA
Hygood	304.205.010 – Electrical Actuator Suppression Diode	24 VDC, 250 mA
	304.209.001 – Electrical Actuator Bridge Rectifier	24 VDC, 250 mA
Minimax	Model MX1230 without diode	24 VDC, 500 mA
Versa	CGS-4292-NB3-S20000	24 VDC, 438 mA
Burkert	5282 2/2-Way Solenoid Valve	24 VDC, 333 mA
Tyco Safety Products	TSP 304205030	24 VDC, 0.5 A
	TSP 304700001	24 VDC, 830mA
Masteco	MSC-01	24 VDC, 1.7A
Note: * For 24 VDC, 450 mA activation, requires a 73886 (21.5 ohm, 23 watt) in-line resistor shipping assembly ordered separately. For additional information refer to the manufacturer's technical documentation.		

Compatible FM Approved Water Control Valves

4007ES Control Panels are assigned to FM Release Control Panel Group 3. Group 3 FM Approved Release Control Panels are compatible will all FM Approved Solenoid Valves rated at 22 Watts or less. For verification of agency listings and power requirements refer to the solenoid valve manufacturer's technical documentation.

Suppression Release Peripheral Installation Reference Diagram

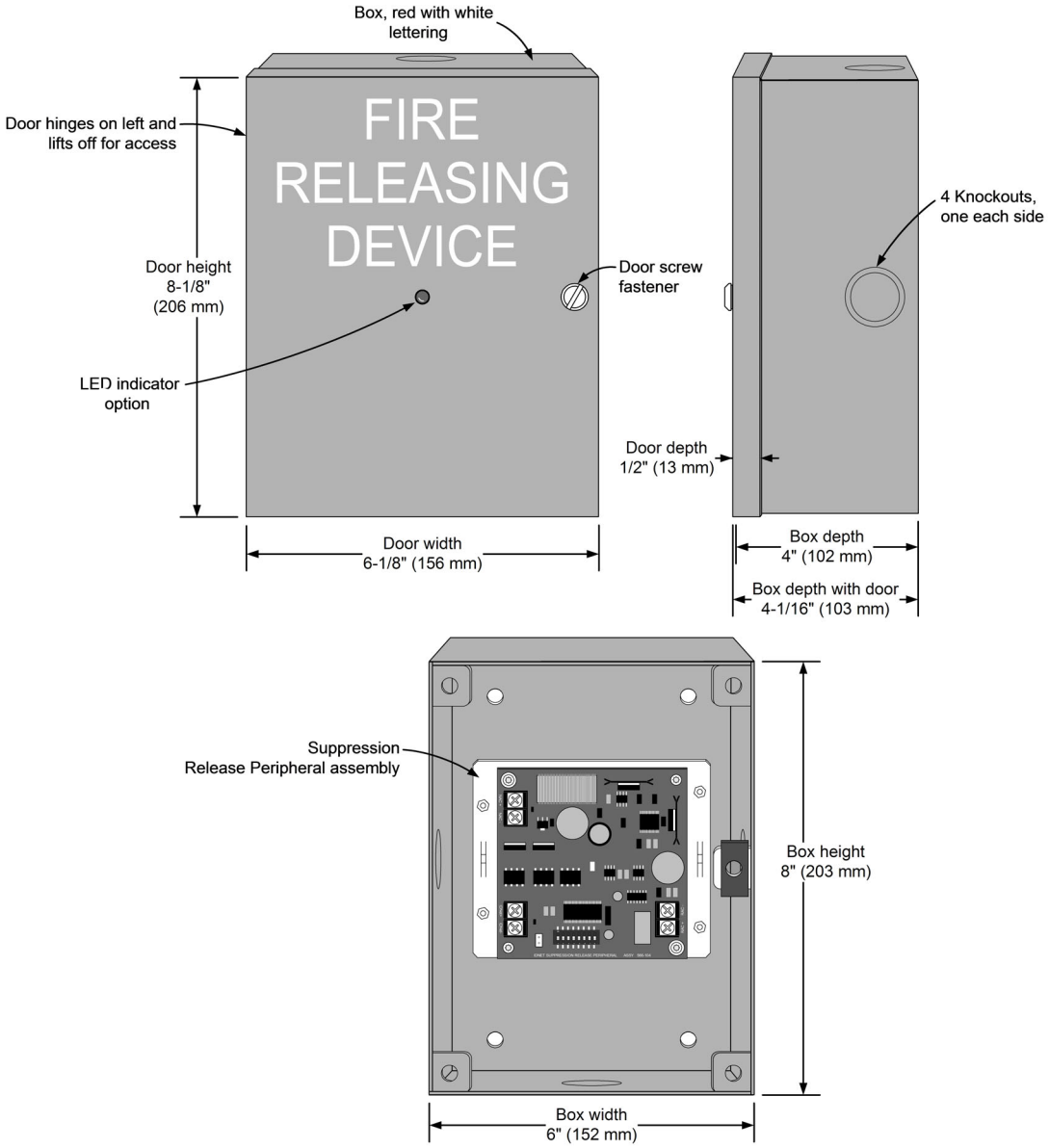


Figure 5: Suppression Release Peripheral Installation Reference Diagram

Note: Figure 5 shows:

1. 2975-9227 box, red with white lettering (supplied with 4090-9006)
2. 4090-9812 LED indicator option (supplied with 4090-9006)
3. 4090-9005 Suppression Release Peripheral assembly (supplied with 4090-9006)

Additional Product Data Sheet Reference

Table 7: Additional Product Data Sheet Reference

Subject	Data Sheet
Releasing System Abort and Maintenance Switches	*S2080-0010*
4009 IDNet NAC Extender	*S4009-0002*
4007ES Panels with Conventional Notification	*S4007-0001*
4007ES Panels with Addressable Notification	*S4007-0002*
Addressable Manual Stations for Releasing Applications	*S4099-0006*

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Releasing System Peripherals

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

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

Features

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

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

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

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

UL listed to Standard 864

Description

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

Maintenance Switches, with and without Disconnect Indicator Lamp

Abort Switch

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

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

Product Selection (see page 3 for specifications)

Abort Switches

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

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

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

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

Maintenance Switches with Disconnect Indicator Lamp

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

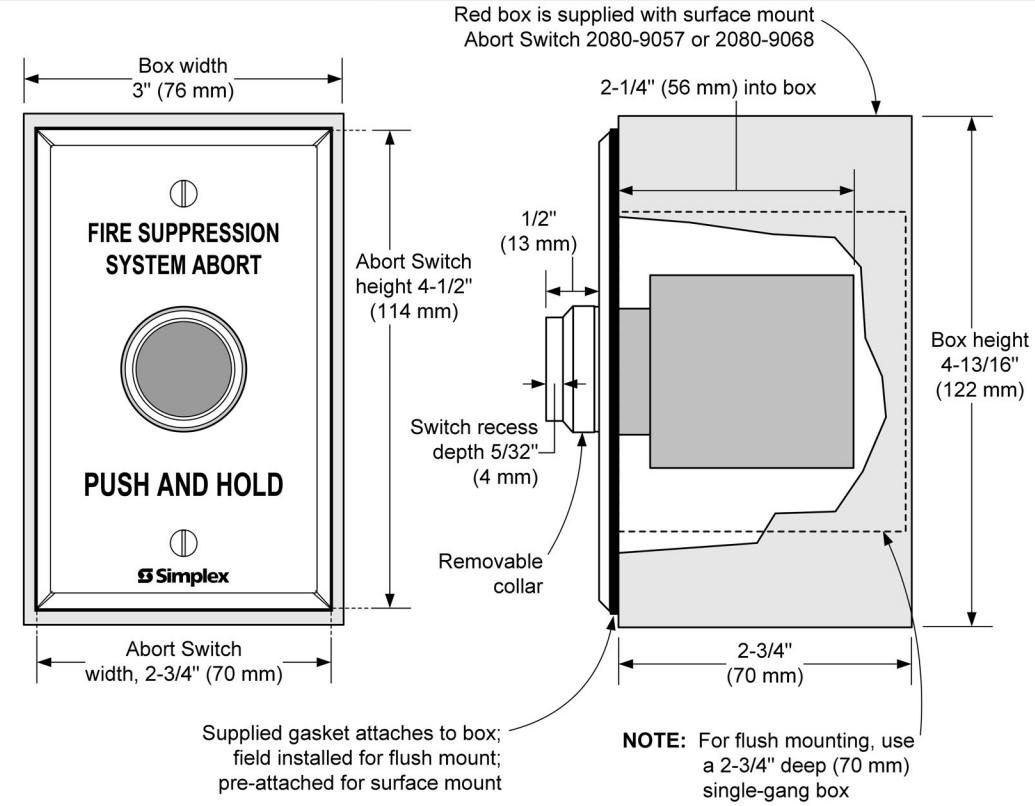
Maintenance Switches without Disconnect Indicator Lamp

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

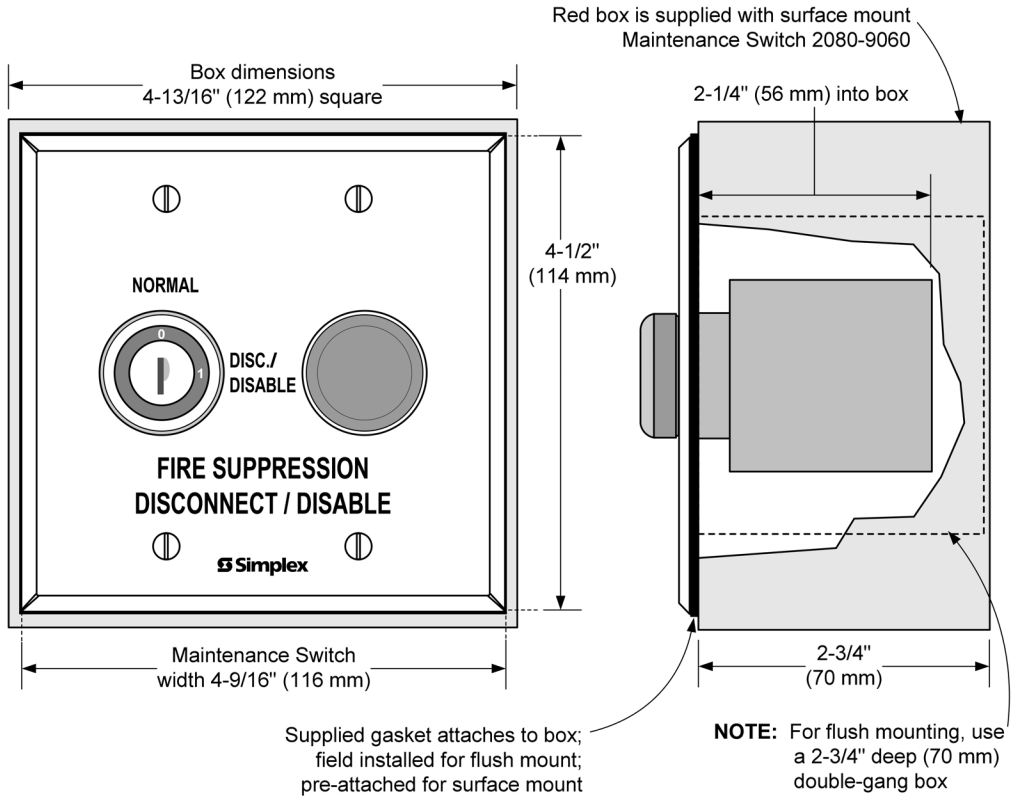
Accessories for Field Installation

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

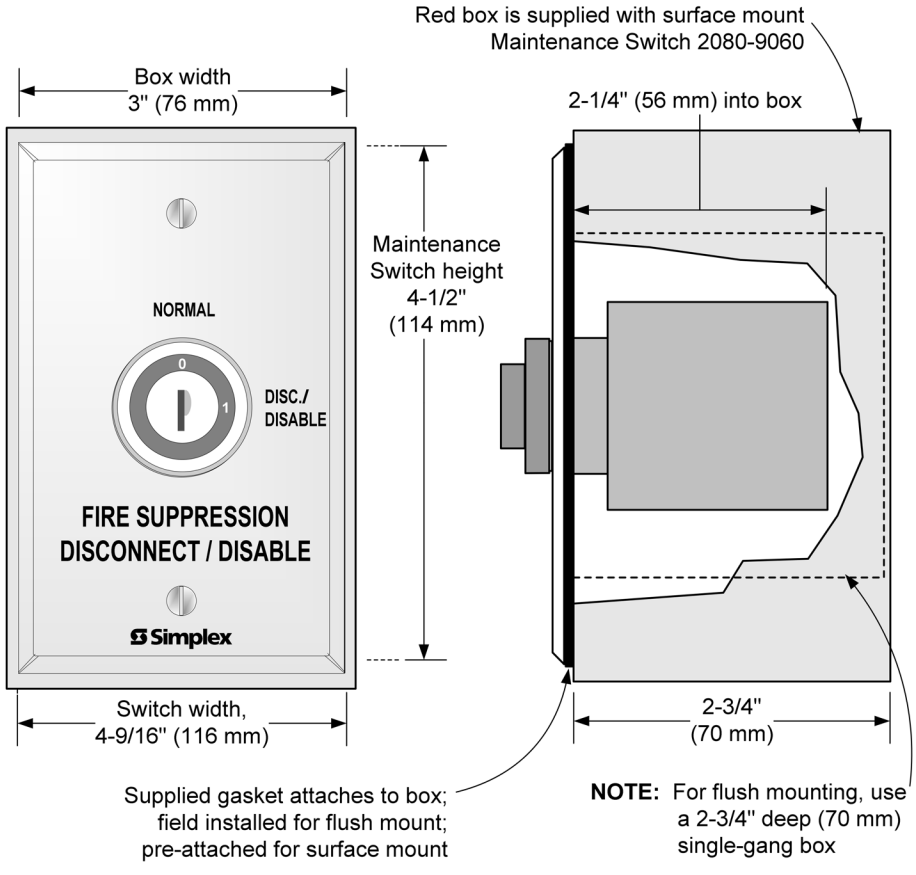
Abort Switch Installation Reference



2080-9059 and 2080-9060 Maintenance Switch Installation Reference



2080-9069 and 2080-9070 Maintenance Switch Installation Reference



Specifications

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

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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:

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

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
- NEMA 1 rated. See TrueAlarm Analog Sensing Product Selection Chart for more information.
- Louvered smoke sensor design enhances smoke capture by directing flow to chamber; entrance areas are minimally visible when ceiling mounted
- Designed for EMI compatibility
- Magnetic 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)

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.

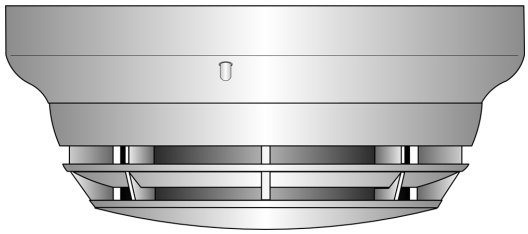

Figure 1: 4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

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.

Sensor Alarm and Trouble LED Indication

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

TrueAlarm 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

* 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. 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.

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)

Figure 2: Remote red LED Alarm Indicator

Description

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

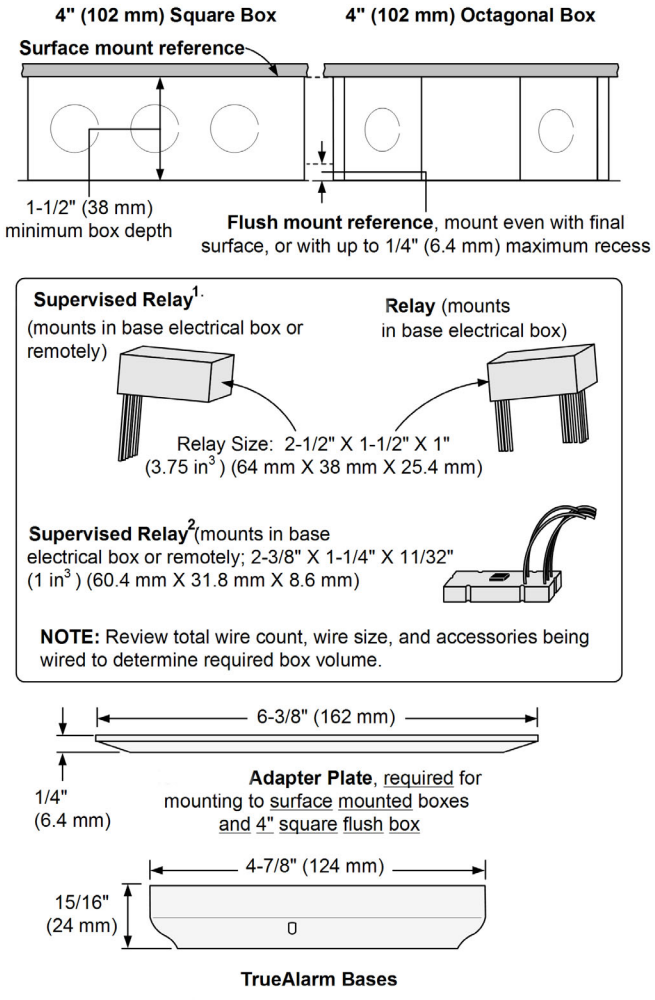

Figure 3: Mounting Reference

Table 1: Product mounting - SKU reference

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

TrueAlarm Sensors

Features

- Sealed against rear air flow entry
- Interchangeable mounting
- EMI/RFI shielded electronics
- Heat sensors:
  - Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
  - Rated spacing distance between sensors:

Fixed Temp. Setting	UL & ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F (57.2° C) 190° F (88° C)*	60 ft x 60 ft (18.3 m)	20 ft x 20 ft (6.1 m) for fixed temperature only; **RTI = Quick**
155° F (68° C)	40 ft x 40 ft (12.2 m)	50 ft x 50 ft (15.2 m) for fixed temperature with either rate-of-rise selection; **RTI = Ultra Fast**

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

Smoke Sensors:

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

4098-9714 Photoelectric Sensor

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

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

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

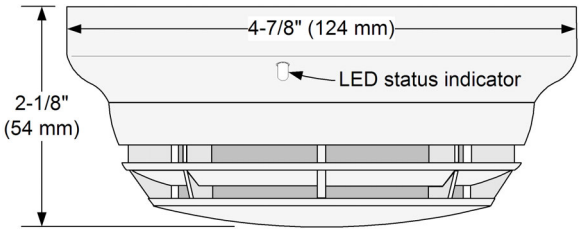

Figure 4: 4098-9714 Photoelectric Sensor with Base

4098-9733 and 4098-9734 Heat Sensors

TrueAlarm heat sensors are self-restoring and provide rate compensated, fixed temperature sensing, 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.***

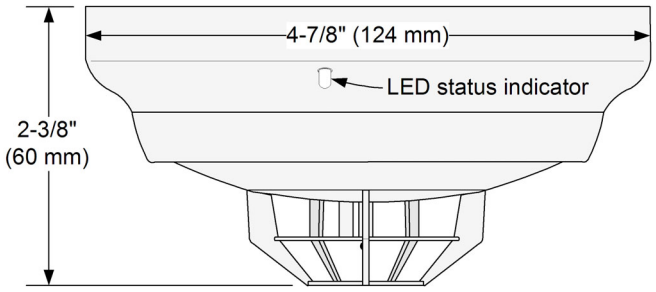

Figure 5: 4098-9733 Heat Sensor with Base

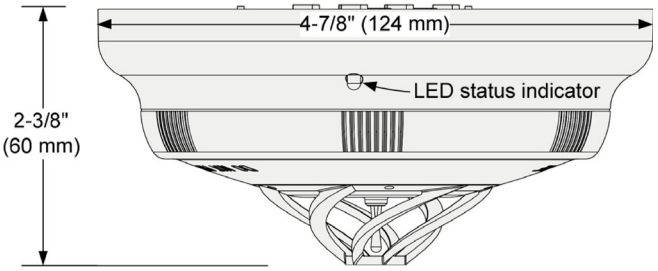

Figure 6: 4098-9734 High Temperature Heat Sensor with Base

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

Application Reference

Sensor locations should be determined only after careful consideration of the physical layout and contents of the area to be protected. Refer to NFPA 72, ***the National Fire Alarm and Signaling Code***. On smooth ceilings, 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

Table 2: TrueAlarm Sensor Bases (for use with Sensors 4098-9714 and 4098-9733)

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

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

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

Table 3: TrueAlarm Sensors

SKU	Color	Description	Compatibility	Mounting Requirements
4098-9714 [1]	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 [1]				
4098-9774 [1]	Black			
4098-9733 [1]	White	Heat Sensor		
4098-9778 [1]	Black			
4098-9734 [1]	White	High Temperature Heat Sensor		

[1]NEMA 1 rated.

Table 4: TrueAlarm Sensor/Base Accessories

SKU	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4 in. octagonal or 4 in. square box, 1 1/2 in. minimum depth **Base Mounting** requires 4 in. octagonal box, 2 1/8 in. deep with 1 1/2 in. extension ring
4098-9860	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9780 base	
2098-9808 [1]	Remote Red LED Alarm Indicator on single gang stainless steel plate	Bases 4098-9789, 4098-9791, and 4098-9780	Single gang box, 1 1/2 in. minimum depth
4098-9822	Unsupervised Relay, tracks base led status; Note: Mounts only in base electrical box	Bases 4098-9789, 4098-9791, and 4098-9780	4 in. octagonal box, 2 1/8 in. deep with 1 1/2 in. extension ring
4098-9832	Adapter Plate	Bases 4098-9792, 4098-9789, 4098-9791, and 4098-9780	**Required** for surface or semi-flush mounted 4 in. square box and for surface mounted 4 in. octagonal box

[1] NEMA 1 rated.

Specifications

Table 5: General operating specifications

Specification		Rating
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°F to 100°F (0°C to 38°C)
Operating temperature range	with 4098-9733 Heat Sensor	32°F to 122°F (0°C to 50°C)
	with 4098-9714 Smoke Sensor	15°F to 122°F (-9°C to 50°C)
	with 4098-9734 Heat Sensor	32°F to 150°F (0°C to 66°C)

Table 5: General operating specifications

Specification	Rating
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

Table 6: 4098-9791 Base with Supervised Remote Relay 2098-9737

Specification	Rating
Externally supplied relay coil voltage	18 VDC to 32 VDC (nominal 24 VDC)
Supervisory current	270 µA, from 24 VDC supply
Alarm current with 2098-9737 relay	28 mA, from 24 VDC supply
Note: See Sensor Base Options for contact ratings.	

Table 7: 4098-9780 Base with Supervised Remote Relay 4098-9860

Specification	Rating
Power	Supplied from communications

Table 8: 4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789, 4098-9791, and 4098-9780

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

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Releasing System Peripherals

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

IDNet or MAPNET II Communicating Devices;
Addressable Manual Stations for Releasing Applications

Features

Individually addressable manual fire alarm stations for releasing applications with:

- Power and data supplied via IDNet or MAPNET II addressable communications using a single wire pair
- Operation that complies with ADA requirements
- Visible LED indicator that flashes during communications and is on steady when the station has been activated
- Pull lever that protrudes when alarmed
- Break-rod supplied (use is optional)
- Dual action push and pull operation
- Label kit provides for six varieties of releasing applications (ordered separately)

Compatible with the following Simplex® Releasing System control panels equipped with either IDNet or MAPNET II communications:

- Model Series 4100ES, 4010ES, and 4010
- Installed 4100, 4120, and 4020 systems

Compact construction:

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

Tamper resistant reset key lock

- Locks are keyed the same as Simplex fire alarm cabinets

Multiple mounting options:

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

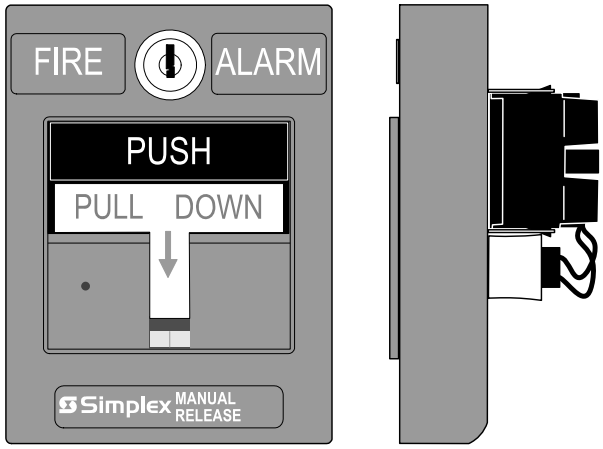
UL listed to Standard 38

Description

These 4099 series addressable manual stations combine the familiar Simplex housing with a compact communication module providing easy installation for releasing applications. The integral individual addressable module (IAM) monitors status and communicates changes to the connected control panel via MAPNET II or IDNet communications wiring.

A blank area on the front of the station allows the selection of a label to match the specific releasing application (label kit is ordered separately). (Refer to data sheet S4099-0005 for standard Simplex addressable manual stations.)

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7150-0026:224 for allowable values and/or conditions concerning material presented in this document. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.



4099-9015 Addressable Manual Station for Releasing Applications (with Manual Release label from 4099-9802 Label Kit)

Label Kit
4099-9802

Operation

Activation requires that a spring loaded interference plate (marked PUSH) be pushed back to access the station pull lever with a firm downward pull that activates the alarm switch. Completing the action breaks an internal plastic break-rod (visible below the pull lever, use is optional). The use of a break-rod can be a deterrent to vandalism without interfering with the minimum pull requirements needed for easy activation. The pull lever latches into the alarm position and remains extended out of the housing to provide a visible indication.

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

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

Addressable Manual Station Product Selection

Addressable Manual Stations

Model	Description
4099-9015	Double action, Push operation, Addressable manual station; red housing with white letters and white pull lever; requires label kit 4099-9802
4099-9802	Label kit, white lettering on red background; select the label required for the specific releasing application; types include: Clean Agent, Extinguishing, Carbon Dioxide, Foam System, Sprinkler, and Manual

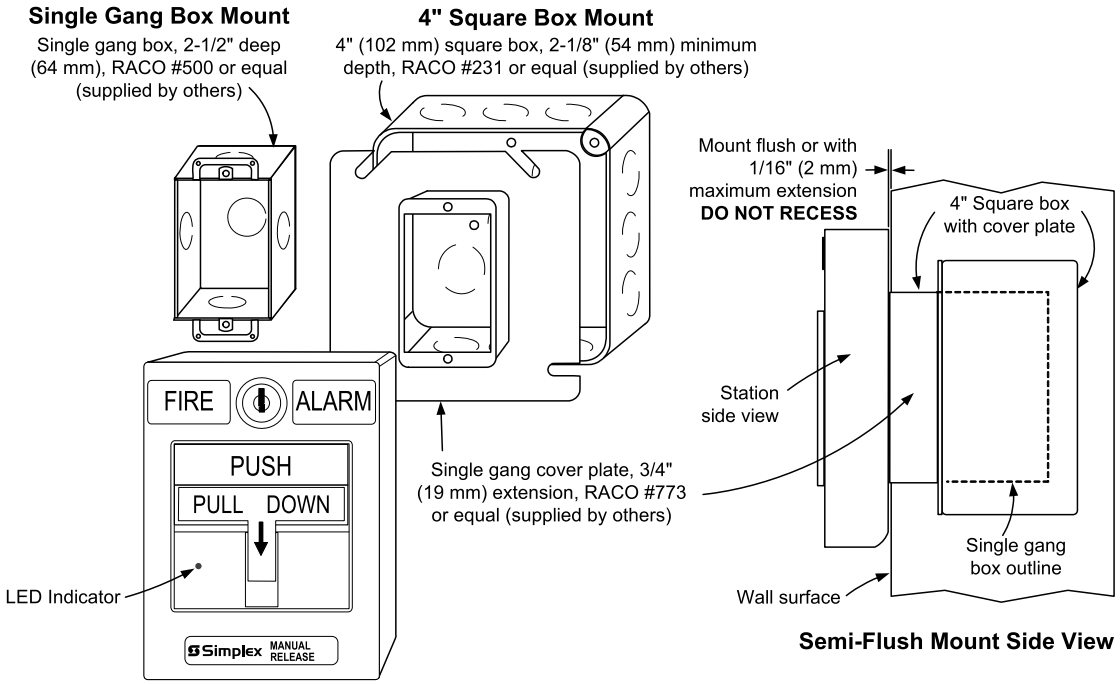
Accessories

Model	Description	Reference
2975-9178	Surface mount steel box, red	Refer to page 3 for dimensions
2975-9022	Cast aluminum surface mount box, red	
2099-9813	Semi-flush trim plate for double gang switch box, red	Typically for retrofit, refer to page 4
2099-9814	Surface trim plate for Wiremold box V5744-2, red	
2099-9819	Flush mount adapter kit, black	Refer to page 4 for details
2099-9820	Flush mount adapter kit, beige	
2099-9804	Replacement break-rod	

Specifications

Power and Communications	IDNet or MAPNET II communications, 1 address per station, up to 2500 ft (762 m) from fire alarm control panel, up to 10,000 ft (3048 m) total wiring distance (including T-Taps)
Address Means	Dipswitch, 8 position
Wire Connections	Screw terminal for in/out wiring, for 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
UL Listed Temperature Range	32° to 120° F (0° to 49° C) intended for indoor operation
Humidity Range	Up to 93% RH at 100° F (38° F)
Housing Color	Red with white raised lettering
Material	Housing and pull lever are Lexan polycarbonate or equal
Pull Lever Color	White with red raised lettering
Housing Dimensions	5” H x 3 ¾” W x 1” D (127 mm x 95 mm x 25 mm)
Installation Instructions	579-1135

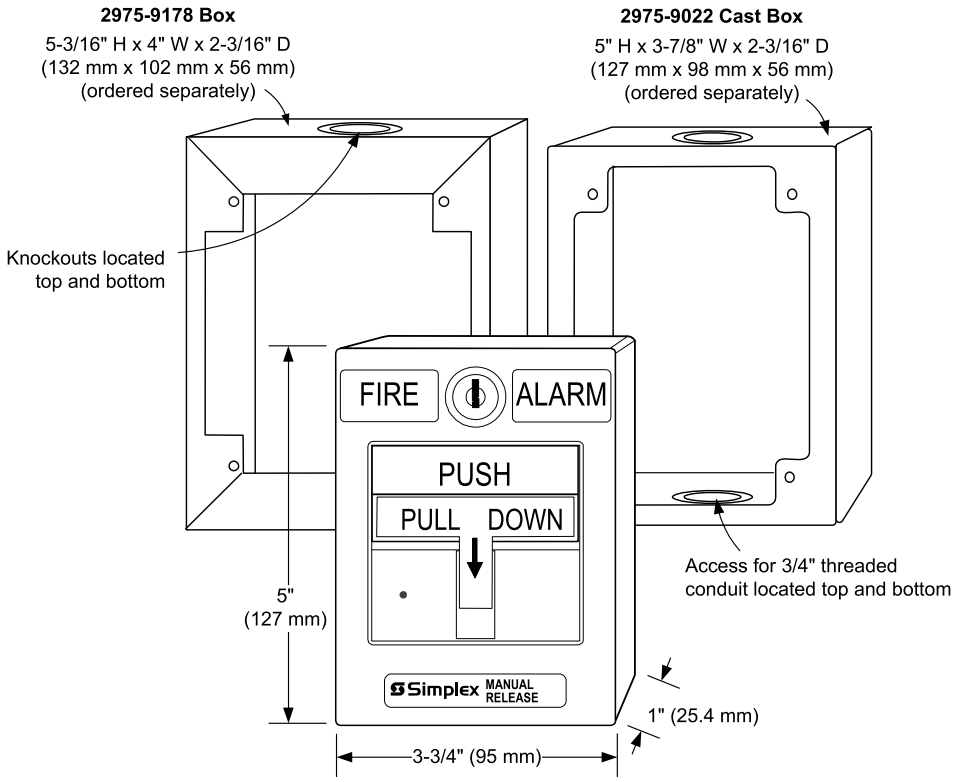
Addressable Manual Station Semi-Flush Mounting



Addressable Manual Stations Surface Mounting

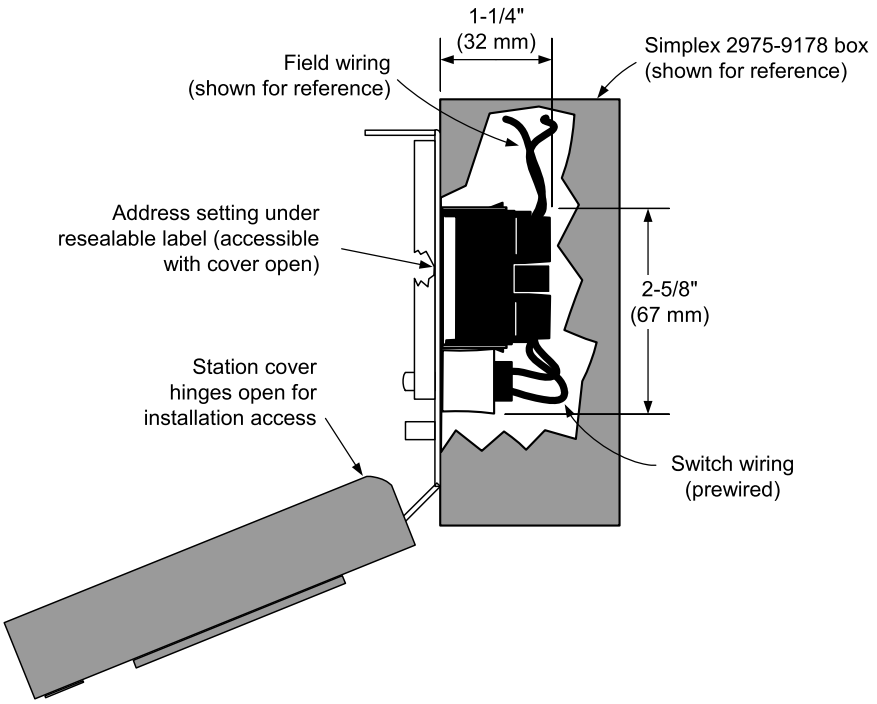
Preferred Mounting. For surface mounting of these addressable manual stations, the preferred electrical boxes are shown in the illustration to the right.

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



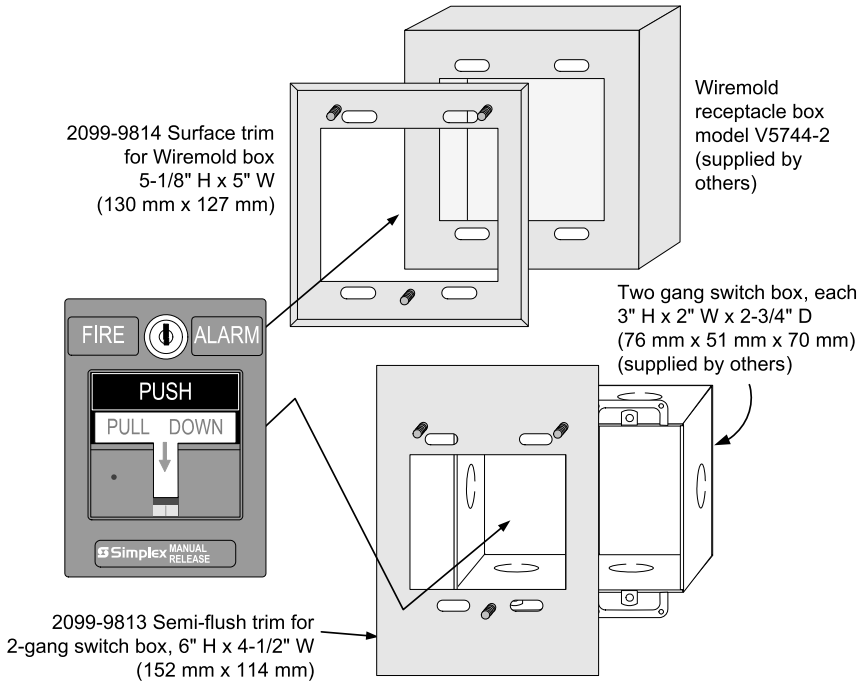
4099-9015 Addressable Manual Station

Surface Mount Side View with Internal Detail

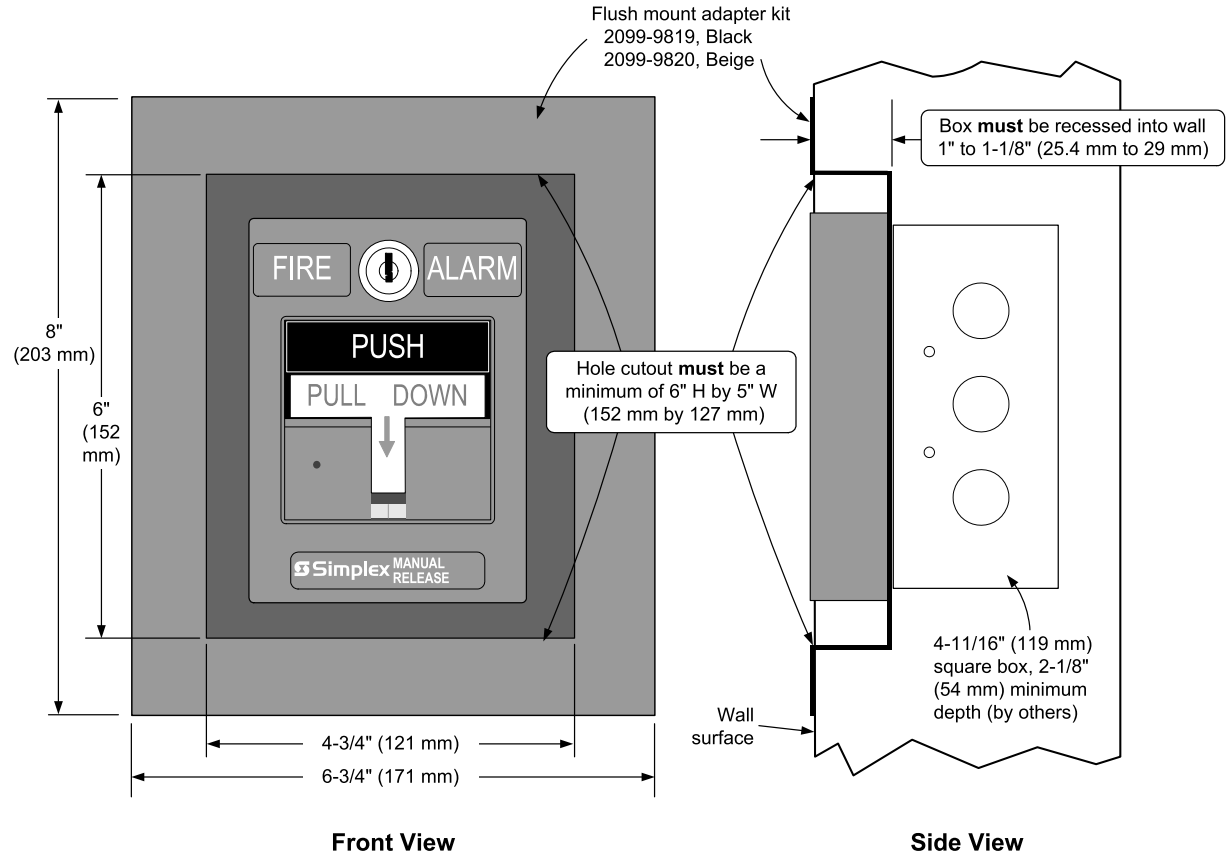


Addressable Manual Station, Additional Mounting Information

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



Addressable Manual Station, Flush Mounting Information



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