ADDENDUM NO.: 3 DATE OF ADDENDUM: December 10, 2015

Roof and HVAC Replacement, Enfield Superior Courthouse
111 Phoenix Ave, Enfield CT
BI – JD – 343

Original Bid Due Date / Time:	**December 16, 2015**	**1:00 PM**
Revised Bid Due Date / Time:	**December 30, 2015**	**1:00 PM**
Previous Addendums:	**Addendum #2 November 23, 2015 & Addendum #1 November 4, 2015**	

TO: **Prospective Bid Proposers:**
This Addendum forms part of the "Contract Documents" and modifies or clarifies the original "Contract Documents" for this Project dated **October 30, 2015**. Prospective Bid Proposers shall acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form. Failure to do may subject Bid Proposers to disqualification.

The following clarifications are applicable to drawings and specifications for the project referenced above.

Item 1

The bid opening will be changed from **December 16, 2015** at 1:00p.m. to **December 30, 2015** at 1:00p.m.

Item 2

RFI -1
Question: Will this project will need to go to the bonding commission after bids received, meaning it is NOT funded at this time? Or has the project been APPROVED by the bonding commission already, meaning it is funded.

Response: The agency has budgeted existing funds for a portion of the estimated project cost. Funding authorization for the balance of project cost has been identified, but such funds are not be available until the Department of Administrative Services has received and determined the lowest responsible and qualified bid, and the Bond Commission approves and allocates funding for the project.

RFI-2
Question: How should the interior protection material be installed in relation to the sprinkler system? Will it be permissible to use a UL and NFPA product that is approved to be installed below the sprinklers, provided it also meets the written specifications?

Response: The sprinkler system must remain operable. It is permissible to use products that meet the specification requirements and are UL and NFPA approved for installation below the sprinklers

Question: Who is ultimately responsible for moving the Customer's inventory for the access needed to install and remove the interior protection? If the interior protection contractor is required to remove and replace inventory, will there be someone provided to help oversee this process?

Response: The Contractor is responsible for moving the Customer's inventory as needed to install and remove the temporary interior protection. The Contractor will coordinate this move with the Construction Administrator and the Owner's representative.

RFI-3
Question: What is the ga of the metal deck (assuming grade C / 33 ksi steel)? Is the joist spacing 6' 0", as it appears to show on Dwg R6?

Response: In Section 07 54 50, ITEM 3.03 PVC MEMBRANE ITEM G ROOF NAV NUMBER 143353-0-0

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THE DETAIL AS SHOWN ON SHEET R7 NUMBER 25 AND DETAIL 23 ON SHEET R6 HAVE BEEN APPROVED BY FM FOR FASTENING THE DECK AND INSTALLING THE ROOF. FOLOW DETAILS AS DRAWN.

Item 3

Drawings:

1. The existing fire alarm control panel (FACP) located in the main entry vestibule is a Simplex 2001 which is no longer supported by the manufacturer. The Contractor shall remove the existing panel and provide a new addressable fire alarm panel in the same location including all required cutting and patching. Basis of Design shall be a Simplex 4100ES and no substitutions of make will be allowed as the remaining fire alarm components throughout the facility are Simplex type and will need to be connected to the new panel. The new panel will be compatible with all of the existing fire alarm devices and will maintain all of the UL listings and fire alarm operations and functions in accordance with NFPA and Code requirements. The contractor will also provide and install a new remote Simplex Fire Alarm Annunciator Panel (FAAP) model number as per the cut sheets attached, in the Building Supervisor's office, Room 145. The Contractor will provide all required programming, testing, materials and labor required for the fire alarm system by NFPA and the State Fire Marshal. The existing RTU smoke detectors shall be removed and replaced with new duct smoke detectors included for both the new RTUs and VAV boxes per the Contract Documents. The smoke detectors are shown for the RTUs on the plans and detail sheet but only on the detail sheet for the VAVs. Contractor shall include duct smoke detectors in the return air duct only for all units scheduled at or above 2000 cfm (VAV-3.1, 5.1, 5.2, 5.3, 5.4, 8.1, 9.4, 9.5, 9.7, 10.3, 11.1 and 11.7).
2. Contractor shall connect the thermostats installed for RTU-1 & 3 as part of last phase to DDC system and shall provide all controls, wiring and connections to DDC as required.
3. Contractor to include Keynote MD12 for RTU-2 controls shown on Part Plan 2/MD1.
4. Contractor to include Keynote MD12 for RTU-6 & 7 controls shown on Plan 1/MD2.
5. Contractor to include Keynote MD17 for all unit heater, cabinet heater and/or radiation valves and controls shown on Drawing MD2, whether shown or not (minimum 6 locations)
6. Contractor to include Keynote MD17 for all unit heater, cabinet heater and/or radiation valves and controls shown on Drawing MD3, whether shown or not (minimum 13 locations)
7. Replacement radiation & unit/cabinet heater valves and controls not shown on Reconstruction Plans M1, M2 & M3 for clarity. Refer to Keynote M15 and to Demolition Plans for locations. Contractor responsible for replacement of all valves and controls whether shown on drawings or not (typical.)
8. Contractor to include Keynote M8 for RTU-2 controls and Keynote M15 for unit heater valve and controls shown on Part Plan 2/M1.
9. Keynote MD15 listed in Records Vault zones 7 & 8 on Drawing MD2 refers to removal and replacement of fiberboard ductwork which is approximately 25% of existing ductwork with the remainder being galvanized. Contractor shall verify in field, and be responsible for complete insulation of existing ductwork throughout.
10. Contractor shall be responsible for all DDC components as per plans, details and control diagrams. Contractor to provide, install and connect all building pressure and humidity sensors (shown on diagrams) as well as temperature sensors (shown on diagrams and plans). Coordinate all locations with manufacturer (typical.)

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11. Detail 1/M5 for RTU replacement is correct except for the gas, electrical and control connections which should all be routed through the roof curb and base of the unit as noted on Rooftop Unit Schedule Drawing M4 (typical for all.)
12. RTU-3 is currently a sideshot unit supported by roof sleepers, contract work shall include converting the existing unit to downflow discharge as per Rooftop Unit Schedule Drawing M4 and providing a new curb. Also, the unit wiring shall be converted to provide VAV control for the new system, layout. Coordinate with Owner to review plans, specifications and submittals from previous phase.
13. Contractor shall be responsible for complete insulation of new and existing piping and ductwork unless otherwise noted (typical.)
14. Contractor shall submit Demolition and Reconstruction plans and schedules to Owner and Engineer for review prior to construction as per General Note #1 on Drawings M1, M2 & M3.

Specifications:

15. Painting work specified in Section 099000 refers to MEP work in finished areas only. The COLP production areas and the Records Vault are considered unfinished areas so painting of insulated ductwork and piping there shall not be required. However, all exposed gas piping in these areas shall be painted per specifications.
16. The existing Simplex FACP and existing RTU duct smoke detectors shall be replaced as per Drawings Note #1 above, and per the manufacturer's cut sheets and materials list included as part of this Addendum. The remainder of Specification Section 283100 shall remain in effect including all programming information and capability turned over to the Owner at the satisfactory completion of the project, battery calculations provided to the Engineer for review, and all required NFPA forms filled out and submitted (including, but not limited to, NFPA 72 Record of Completion, Inspection and Test, Maintenance Schedules, etc.) Specific Section 283100 modifications/additions to be included in the project are as follows:
    a. 2.01 A & B: Basis of Design - Simplex 4100ES addressable fire alarm panel.
    b. 2.02 A: Simplex 4100ES addressable fire alarm panel. No substitutions of make allowed, Simplex only.
    c. 2.02 C: Reuse existing branch circuit power supply. Provide adequate battery backup capacity with calculations submitted to Engineer.
    d. 2.03:
        i. Add C. Remove and replace all existing duct smoke detectors, provide new type for all supply and return air ductwork for each RTU.
        ii. Add D. All other existing FA components are to remain and shall be wired into the new addressable panel as required (typical).
    e. 2.04 B. 1. – Provide duct smoke detector notification signal to new FACP addressable zone module.
17. Contractor shall include means and methods for provision of temporary HVAC as follows:

- PROVIDE TEMPORARY HVAC SERVICES & UTILITIES TO MAINTAIN FULL CODE COMPLIANT OCCUPANCY DURING CONSTRUCTION THROUGHOUT THE ENTIRE FACILITY.

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- ADDITIONAL WORK SHALL BE PROVIDED AS REQUIRED ON THE EXTERIOR PORTION OF THE BUILDING FOR PROTECTION OF THE ROOFING MEMBRANE, RIGGING OF ROOFTOP EQUIPMENT, AND SETTING OF TEMPORARY SYSTEMS AND UTILITIES FOR SUPPORTING EQUIPMENT. THIS EXTERIOR WORK SHALL ALSO INCLUDE, BUT NOT BE LIMITED TO, ANY RELATED OPENINGS OR CLOSURES IN WALLS OR ROOFS FOR TEMPORARY SERVICES OR RIGGING, OPENING PROTECTIONS OF THESE EXTERIOR STRUCTURES, WATERPROOFING TO MEET CONTINUED WARRANTY REQUIREMENTS, NECESSARY STRUCTURAL MODIFICATIONS, ANY REQUIRED STEEL FABRICATION, ROOFING WORK OVER STEEL DECK, INSULATION OR MEMBRANE INCLUDING REPAIRS, PROTECTIONS, AND MODIFICATIONS IN ACCORDANCE WITH MAINTAINING THE EXISTING WARRANTIES, AND SHALL BE PROVIDED COMPLETE WITH ALL ACCESSORIES AS SPECIFIED ON PLANS AND SPECIFICATIONS, OR AS REQUIRED TO MAINTAIN CONTINUED WATERPROOF INTEGRITY.

- SPECIAL CONDITIONS: (INCLUDED IN BID AT NO ADDITIONAL COSTS TO THE OWNER)

1. ALL COURTHOUSE FACILITIES, SPACES, ROADWAYS AND WALKWAYS ARE TO BE CONSIDERED FULLY OCCUPIED AND REQUIRED TO BE FULLY OPERATIONAL, AND BE CODE COMPLIANTLY HEATED, VENTILATED & AND PROTECTED DURING ALL REGULAR, NON-HOLIDAY WORKDAYS FROM 5:00 AM TO 5:00 PM UNLESS OTHERWISE IDENTIFIED BY THE OWNER. MAINTAIN MINIMUM AMBIENT CONDITIONS AS FOLLOWS, UNLESS DIRECTED OTHERWISE BY OWNER – HEATING: 70 deg.F; COOLING: 75 deg.F; RELATIVE HUMIDITY: 50%.

2. A L L A R E A S SHALL BE ADEQUATELY VENTILATED TO PROVIDE AT LEAST A MINIMUM QUANTITY OF CODE COMPLIANT TEMPERED OUTDOOR AIR FOR ALL OPERATIONALLY REQUIRED EXHAUSTS AND CODE COMPLIANT OCCUPANCY LEVELS. USE OF THE EXISTING PERIMETER HEATING SYSTEM WHERE AVAILABLE MAY BE USED TO HELP MEET THIS REQUIREMENT TO MAINTAIN SPACE TEMPERATURES FOR OCCUPIED AREAS.

3. ANY COURTHOUSE FACILITY ENTRANCE(S) BEING USED AS PART OF A PATH TOWARD PROVIDING TEMPORARY UTILITIES, SERVICES, AND/OR CONSTRUCTION WORKER OR MATERIALS ACCESS SHALL BE ADEQUATELY SECURED AGAINST PERSONNEL ENTERING FROM OUTSIDE (BUT NOT FROM PERSONNEL INSIDE EXITING TO THE OUTSIDE AS A MEANS OF CODE REQUIRED EGRESS) AS SOLELY DETERMINED BY THE OWNER. IF THIS CANNOT BE DONE ADEQUATELY TO THE SATISFACTION OF THE OWNER, THEN THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE AN ASSIGNED AND DEDICATED WATCHPERSON WITH SUITABLE 2-WAY COMMUNICATION DEVICE TO GUARD EACH SUCH ENTRANCE FROM PERSONNEL INTRUSION, FOR AS LONG AS THE ENTRANCE REMAINS UNSECURED ON A 24HR BASIS FOR THE ENTIRE LENGTH OF THE CONSTRUCTION PERIOD.

4. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ALL REQUIRE D CODE COMPLIANT TEMPORARY SERVICES USING CODE COMPLIANT EQUIPMENT UTILITIES, STANDARDS, AND LICENSED PERSONNEL IN THE

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TYPES, QUANTITIES, PRESSURES AND TEMPERATURES REQUIRED TO PROVIDE FULL OPERATIONAL CAPACITY OF THE IMPACTED FACILITIES/SPACES FOR A FULL CODE COMPLIANT OCCUPANCY BY COURTHOUSE PERSONNEL AND THE PUBLIC ON A 24/7 BASIS FOR THE ENTIRE PERIOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE A PLAN TO ACCOMPLISH THIS SCOPE TO THE OWNER AND ENGINEER FOR THEIR REVIEW AND CONCURRENCE AT THE START OF THE PROJECT.

5. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ALL CODE COMPLIA NT
MATERIALS, EQUIPMENT, AND DEDICATED ASSIGNED LABOR NECES SARY TO PROTECT, CLEAN, AND RE-ESTABLISH ALL FIXED FURNISHINGS, FINISHED SURFACES, AIRSIDE OUTLETS OF IMPACTED SYSTEMS, CARPETS, AND/OR FINISHED FLOORS LOCATED WITHIN THE SPACES IMPACTED BY THIS WORKSCOPE FROM DAMAGE, DIRT, WATER, PESTS AND/OR ADVERSE ENVIRONMENTAL CONDITIONS (BASED UPON THE SOLE DISCRETION OF THE OWNER OR HIS DESIGNATED REPRESENTATIVE) AT NO ADDITIONAL COST TO THE OWNER.

(See Attachment)

All questions must be in writing (not phone or e-mail) and must be forwarded to the consulting Architect/Engineer (BPD Consulting Fax No: 860- 653-6988) with copies sent to the DCS Project Manager (Steven Udeh Fax No: 860-713-7264).

End of Addendum No. 3

Philip St. Amand, Purchasing Assistant
Department of Administrative Services
On Behalf of the Division of Construction Services

Simplex

4100ES Fire Control Panels

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

Addressable Fire Detection and Control
Basic Panel Modules and Accessories

Features

Master Controller (top) bay:

- 32-Bit Master Controller with color-coded operator interface including raised switches for high confidence feedback
- Dual configuration program CPU, convenient service port access, and capacity for up to 2000 addressable points
- CPU assembly includes dedicated compact flash memory for on-site system information storage
- System power supply (SPS) and charger (9 A total) with on-board: NACs, IDNet addressable device interface, programmable auxiliary output and alarm relay
- Available with InfoAlarm Command Center expanded content user interface (see data sheet S4100-0045)
- Upgrade kits are available for existing control panels

Standard addressable interfaces include:

- IDNet addressable device interface with 250 points that support TrueAlarm analog sensing and operate with *either shielded or unshielded* twisted pair wiring
- Remote annunciator module support via RUI (remote unit interface) communications port

Optional modules include:

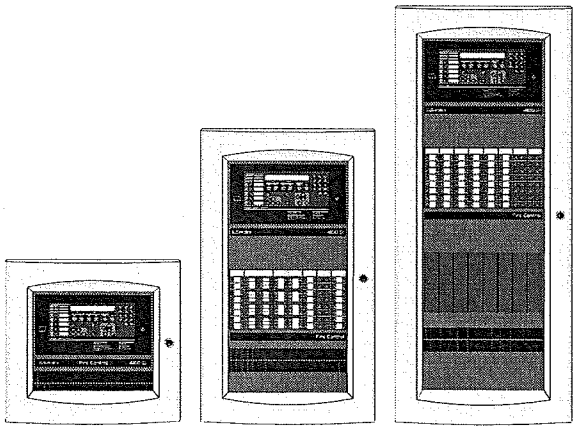
- Building Network Interface Module (BNIC) for Ethernet connectivity options (see data sheet S4100-0061)
- TrueAlert addressable notification appliance power supplies with three, 3 A SLC outputs
- Additional IDNet and MAPNET II addressable device modules and IDNet/MAPNET II quad isolator modules
- IDNet+ output module with built-in quad isolator and enhanced operation for better retrofit to existing wiring (see data sheet S4100-0046)
- Fire Alarm Network Interfaces, DACTs, city connections, and up to five (5) RS-232 ports for printers and terminals
- IP communicator compatibility
- Alarm relays, auxiliary relays, additional power supplies, IDC modules, NAC expansion modules
- Service modems, VESDA Air Aspiration Systems interface, ASHRAE BACnet Interface, TCP/IP Bridges
- LED/switch modules and panel mount printers
- Emergency communications systems (ECS) equipment; 8 channel digital audio or 2 channel analog audio
- Battery brackets for seismic area protection (see page 2)

Compatible with Simplex® remotely located:

- 4009 IDNet NAC Extenders, up to ten per IDNet SLC
- TrueAlert Addressable Controllers

4100ES and upgrade kits are UL Listed to:

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



4100ES Cabinets are Available with
One, Two or Three Bays

Software Feature Summary

CPU provides dual configuration programs:

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

PC based programmer features:

- Convenient front panel accessed Ethernet port for quick and easy ***download*** of site-specific programming
- Modifications can be ***uploaded*** as well as downloaded for greater service flexibility
- ***AND***, firmware enhancements are made via software downloads to the on-board flash memory

Introduction

4100ES Series Fire Detection and Control Panels provide extensive installation, operator, and service features with point and module capacities suitable for a wide range of system applications. An on-board Ethernet port provides fast external system communications to expedite installation and service activity. Dedicated compact flash memory archiving provides secure on-site system information storage of electronic job configuration files to meet NFPA 72 (*National Fire Alarm and Signaling Code*) requirements.

Modular design. A wide variety of functional modules are available to meet specific system requirements. Selections allow panels to be configured for either Stand-Alone or Networked fire control operation. InfoAlarm Command Center options provide convenient expanded display content (detailed on data sheet S4100-0045).

* See pages 5 and 6 for product that is UL or ULC listed and additional listing information. This product has been listed by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:251(4100ES) and 7300-0026:0368 (4009 TPS) for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

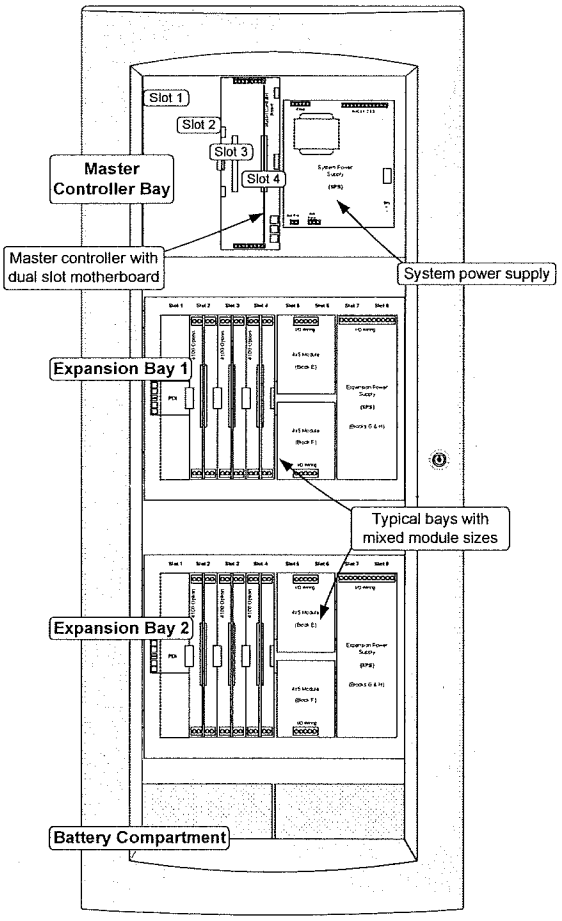
Module Bay Description

The Master Controller Bay (top) includes a standard multi-featured system power supply, the master controller board, and operator interface equipment.

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

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

The following illustration identifies bay locations using a three bay cabinet for reference.



4100ES Module Bay Reference

Mechanical Description

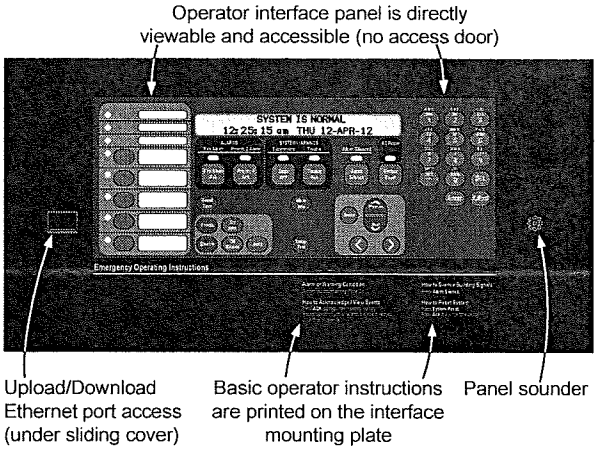
- Boxes can be close-nippled; each box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- Cabinet assembly design has been seismic tested and is certified to IBC and CBC standards as well as to ASCE 7-05 category D, requires 33 Ah or 50 Ah batteries with battery brackets as detailed on data sheet S2081-0019

Mechanical Description *(Continued)*

- The latching dress panel (retainer) assembly easily lifts off for internal access
- NACs are mounted directly on power supply assemblies providing minimized wiring loss, compact size, and readily accessible terminations
- Packaging supports traditional 4100-style motherboard with daughter cards
- Modules are power-limited (except as noted, such as relay modules)
- The NEMA 1 box is ordered separately and available for early installation
- Doors are available with tempered glass inserts or solid; boxes and doors are available in platinum or red
- Boxes and door/retainer assemblies are ordered separately per system requirements; refer to data sheet S4100-0037 for details

Operator Interface Detail Reference

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



Software Feature Summary

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

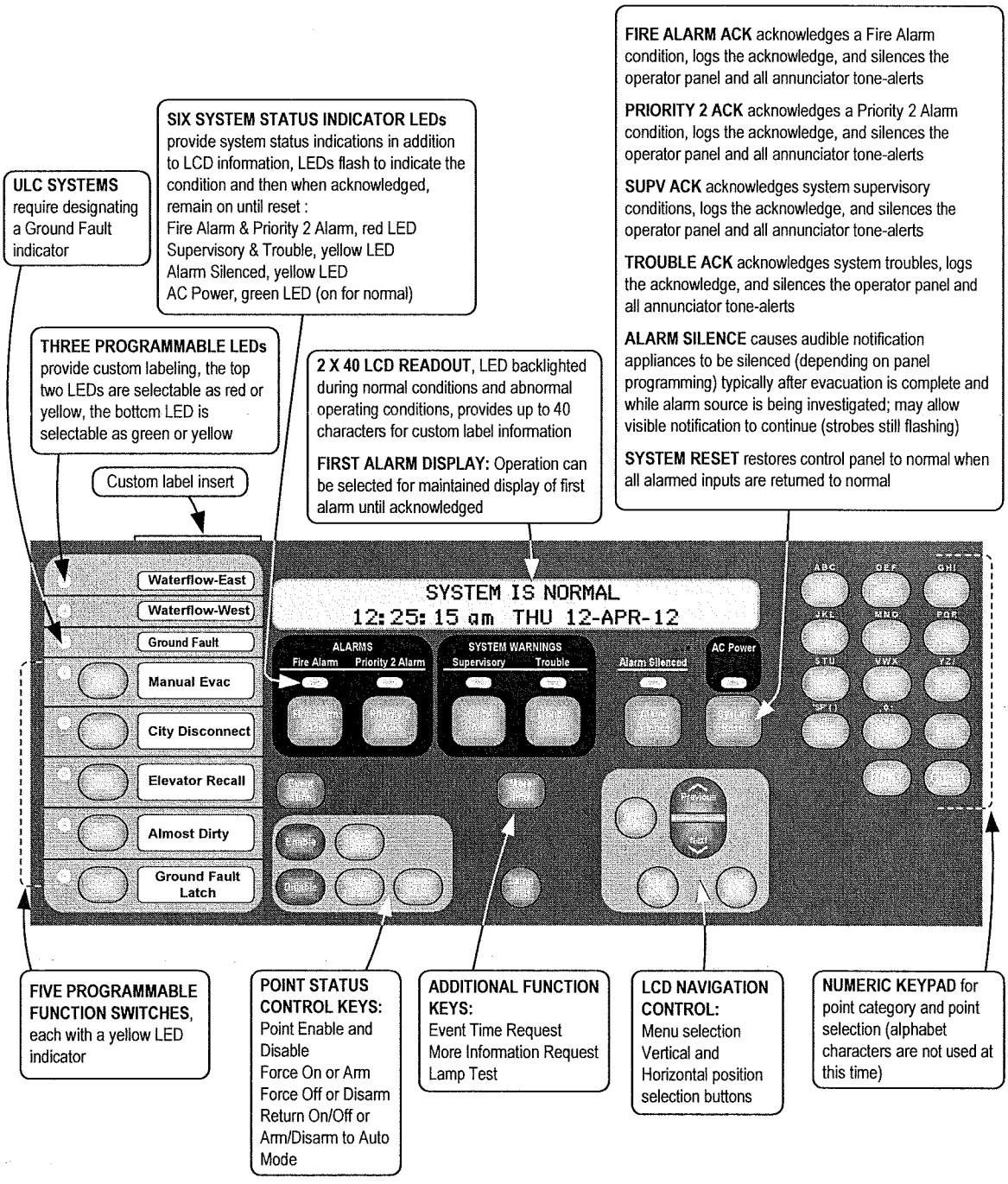
Operator Interface

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

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

Operator Interface Features

- Convenient and extensive operator information is provided using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Alarm and Trouble History Logs (up to 1300 total events) are available for viewing from the LCD, or capable of being printed to a connected printer, or downloaded to a service computer
- Convenient PC programmer label editing
- Password access control



Compatible Peripheral Devices

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

Addressable Device Control

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

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

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

IDNet Channel Capacity. The CPU bay system power supply (SPS) provides an IDNet signaling line circuit (SLC) that supports up to 250 addressable monitor and control points intermixed on the same pair of wires. Additional IDNet circuit modules are available for 64, 127, or 250 addressable devices.

IDNet/MAPNET II Communications wiring specifications. Distances are for shielded or unshielded wire. Shielded wire may provide protection from unexpected sources of interference.

Wiring Specifications

Size		18 AWG (0.82 mm²)
Type	Preferred	Shielded twisted pair (STP)
	Acceptable*	Unshielded twisted pair (UTP)
Farthest Distance from Control Panel per Device load	126-250	Up to 2500 feet (762 m)
	up to 125	Up to 4000 ft (1219 m)
Total Wire Length Allowed With "T" Taps for Class B Wiring		Up to 10,000 ft (3 km); 0.58 µF

* Some applications may require shielded wiring. Review your system with your local Simplex product supplier.

TrueAlert Addressable Notification

TrueAlert Power Supplies provides three, 3 A Signaling Line Circuits (SLCs) for controlling and powering addressable notification appliances. With addressable appliances, Class B wiring can be "T-tapped" for easier wiring and reduced wire run lengths. Appliances include horns, strobes, and combination units. For more detail, refer to data sheet S4009-0003.

TrueAlarm System Operation

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

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

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

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

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

Diagnostics and Default Device Type

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

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

CPU Bay Module Details

Master Controller and Motherboard:

- Mounts in Slot 4 of a two slot motherboard (Slots 3 and 4 of the Master Controller Bay) and provides one Style 4 or Style 7, RUI communications channel, available at Slot 4
- RUI communications controls up to 31 devices per master controller (on one or multiple RUI channels); devices include: MINIPLEX transponders, 4603-9101 LCD Annunciators, 4602-9101 Status Command Units (SCU), 4602-9102 Remote Command Units (RCU), 4602 Series LED Annunciator Panels, 4100 Series 24 I/O and LED/Switch modules, and remote mount 4009 TPS units
- Up to four RUI channels are supported; use up to three 4100-1291 RUI expansion modules as required
- Optional Service Modem 4100-6030 mounts onto the master controller board with its own on-board connections
- Slot 3 of the motherboard is primarily for the 4100-6078 Network Interface Board with media modules, and secondarily for the 4100-6038 Dual RS-232 Board (4100-6038 is required for 2120 System connections)

System Power Supply: (see page 8 for more detail)

- Rating is 9 A total with "Special Application" appliances; 4 A total for "Regulated 24 DC" appliance power
- Outputs are power-limited, except for the battery charger
- Provides system power, battery charging, auxiliary power, auxiliary relay, earth detection, on-board IDNet communications channel for 250 points, three on-board NACs, and provisions for either an optional City Connect Module or an optional Alarm Relay Module
- **IDNet SLC Output** provides Class B or Class A communications for up to 250 addressable devices (as described on page 4)

System Power Supply *(Continued)*:

- **Three, 3 A On-Board NACs**, conventional reverse polarity operation; rated 3 A for Special Application appliances and 2 A for Regulated 24 DC power, with electronic control and overcurrent protection; selectable as Class B or Class A, and for synchronized strobe or SmartSync horn/strobe operation over two wires
- **NACs can be selected** as auxiliary power outputs derated to 2 A for continuous duty; the total auxiliary power output per SPS is limited to 5 A
- **Battery Charger** is dual rate, temperature compensated, and charges up to 50 Ah sealed lead-acid batteries mounted in the battery compartment (33 Ah for single bay cabinets); also is UL listed for charging up to 110 Ah batteries mounted in an external cabinet (see data sheet S2081-0012 for details)
- **Battery and Charger Monitoring** includes battery charger status and low or depleted battery conditions; status information provided to the master controller includes analog values for: battery voltage, charger voltage and current, actual system voltage and current, and individual NAC currents
- **2 A Auxiliary Power Output** is selectable for detector reset, door holder, or coded output operation
- **Auxiliary Relay** is selectable as N.O. or N.C., rated 2 A @ 32 VDC, and is programmable as a trouble relay, either normally energized or normally de-energized, or as an auxiliary control
- **Optional City Connect Module** (4100-6031, with disconnect switches, or 4100-6032, without disconnect switches) can be selected for conventional dual circuit city connections
- **Optional Alarm Relay Module** (4100-6033) provides three Form C relays that are used for Alarm, Trouble, and Supervisory, rated 2 A resistive @ 32 VDC

Master Controller Selection Information

Master Controller and Expansion Bay Selection* (Canadian models have low battery cutout)

Model	Model Type and Listing			Description	Supv.	Alarm
4100-9111	120 VAC Input		UL	4100ES Master Controller Assembly **with LCD and operator interface**, 9 A system power supply/battery charger (SPS), 250 point IDNet interface, 3 NACs, auxiliary relay, and external RUI communications interface	373 mA	470 mA
4100-9112	English	120 VAC, Canadian	ULC			
4100-9113	French					
4100-9211	220-240 VAC Input		UL			
4100-9131	120 VAC Input		UL	4100ES Master Controller Assembly, **no display, no operator interface**, 9 A system power supply/battery charger (SPS), 250 point IDNet interface, 3 NACs, auxiliary relay, and external RUI communications interface	363 mA	425 mA
4100-9132	English	120 VAC, Canadian	ULC			
4100-9133	French					
4100-9230	220-240 VAC Input		UL			
4100-9121 (not ULC listed)	Redundant Master Controller, two bay assembly; top bay contains LCD and operator interface, CPU card assembly, and 4100ES, 9 A system power supply/battery charger (SPS); second bay contains CPU card in Slot 2, and LCD and operator interface; 120 VAC, 60 Hz input; **NOTE: RUI connections require use of 4100-1291 RUI expansion modules**				718 mA	937 mA
4100-2300	Expansion Bay Assembly; **order for each required expansion bay** (not required for 4100-9121)					
4100-2303	Legacy Module Stabilizer Bracket, used when expansion bays have legacy slot style modules					

Master Controller Upgrades for Existing 4100 Series Fire Alarm Control Panels*

Model	Panel Type	Includes
4100-7150	1000 pt 4100 (4100+)	New Master Controller and 4100ES user interface door assembly with Ethernet connection
4100-7152	512 pt 4100	Same as 4100-7150 plus includes a Universal Power Supply
4100-7158	1000 pt 4100 (4100+) or 4100U	New Master Controller with Ethernet Connection Upgrade Kit; for 4100+ **without** LCD and operator interface, or 4100U **with or without** LCD and operator interface
4100-2301	Expansion Bay Upgrade Kit for mounting 4100ES style (4" x 5" modules) in existing 4100 style panels; **Note:** When using this kit to upgrade a 4100+ transponder, a **4100-0620 Transponder Interface Card (TIC)** is also required for communications to the 4100ES module	

* For InfoAlarm Command Center expanded content display products, refer to data sheet S4100-0045. *(Continued on next page)*

Module Selection Information

Master Controller Upgrades for Existing 4020 Series Fire Alarm Control Panel

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

Communication Modules

Model	Description		Size	Supv.	Alarm
4100-6078	For Master Controller; mounts in Slot 3	Modular Network Interface; each requires two media modules (below)	1 Slot	46 mA	46 mA
4100-6061	For Redundant Master Controller		1 Slot	46 mA	46 mA
4100-6056	Wired Media Module	Select two media cards as required; mounts on 4100-6078 or 4100-6061	N.A.	55 mA	55 mA
4100-6057	Fiber Optic Media Module		N.A.	25 mA	25 mA
4100-6047	Building Network Interface Card (BNIC), refer to data sheet S4100-0061 for details		2 Blocks	291 mA	291 mA
4100-6055	Network Access Dial-in Service Modem, mounts to 4100-6078 or 4100-6061 Network Interface Card, requires telephone line connection		N.A.	60 mA	60 mA
4100-1291	Remote Unit Interface Module (RUI); up to three maximum per control panel		1 Slot	85 mA	85 mA
4100-6030	Service Port Modem, local panel access only, mounts to Master Controller Module, requires telephone line connection, accesses same information as front panel port		N.A.	70 mA	70 mA
4100-6031	**Select one per SPS** (fits on SPS)	City Circuit, with disconnect switches; For use with SPS only, not RPS	N.A.	20 mA	36 mA
4100-6032		City Circuit, w/o disconnect switches	N.A.	20 mA	36 mA
4100-6033		Alarm Relay, 3 Form C relays, 2 A @ 32 VDC; for SPS or RPS	N.A.	15 mA	37 mA
4100-6101	Physical Bridge, Class B, includes 1 modem module and 2 wired modules		1 Slot	210 mA	210 mA
4100-6102	Physical Bridge, Class X, includes 2 modem and 2 wired modules		2 Slots	300 mA	300 mA
4100-6038	Dual Port RS-232 with 2120 interface (slot module)	3 maximum of RS-232 type modules per panel	1 Slot	132 mA	132 mA
4100-6046	Dual Port RS-232 standard interface (4 x 5 module)		1 Block	60 mA	60 mA
4100-6045	Decoder Module		3 Slots	85 mA	163 mA
4100-6048	VESDA Aspiration System Interface		1 Slot	132 mA	132 mA
4100-6052	DACT, Point or Event Reporting; 1 shipped unless 4100-7908 is selected; 2 max. per system; includes 2, 2080-9047 cables, 14 ft (4.3 m) long, RJ45 plug and spade lugs		1 Slot	30 mA	40 mA

Expansion, System, Remote, and TrueAlert Power Supplies and Accessories (Canadian models have low battery cutout)

Model	Voltage/Listing		Description	Size	Supv.	Alarm
4100-5101	120 VAC	UL	**Expansion Power Supply (XPS)**; 9 A output, 3 built-in Class A/B NACs; NAC operation is same as SPS, see page 5 for details	2 Blocks	50 mA	50 mA
4100-5103	120 VAC, Canadian	ULC				
4100-5102	220-240 VAC	UL				
4100-5115	NAC Expansion Module, 3 NACs, Class A/B, **mounts on XPS only**			N.A.	25 mA	25 mA
4100-5111	120 VAC	UL	**Additional System Power Supply (SPS)**; 9 A power supply/charger with 250 point IDNet channel, 3 Class A/B NACs, add IDNet device currents separately	4 Blocks	175 mA	185 mA
4100-5112	120 VAC, Canadian	ULC				
4100-5113	220-240 VAC	UL				
4100-5125	120 VAC	UL	**Remote Power Supply (RPS)**; 9 A power supply/charger similar to SPS except no IDNet channel or City Circuits; will accept one 4100-6033	4 Blocks	150 mA	185 mA
4100-5126	120 VAC, Canadian	ULC				
4100-5127	220-240 VAC	UL				
4100-5120	120 VAC	UL	**TrueAlert Power Supply (TPS)**; 3 Class B SLCs rated 3 A each for up to 63 TrueAlert addressable (special application) appliances per channel, 189 per TPS; built-in battery charger; 2 A aux. power output; add device current separately (see S4009-0003 for details)	4 Blocks	88 mA	100 mA
4100-5121	120 VAC, Canadian	ULC				
4100-5122	220-240 VAC	UL				
4100-5124	TrueAlert SLC Class A Adapter for all 3 SLCs, **mounts on TPS only**			N.A.	10 mA	10 mA
4100-5152	12 VDC Power Option, 2 A maximum			1 Block	1.5 A maximum	
4100-0156	8 VDC Converter, required for multiple Physical Bridge Modules, 3 A maximum			1 Block	included w/loads	
4009-9813	4009 TPS Transponder Interface Card (TIC), mounts in a remote cabinet with TPS; order card, TPS, and batteries separately, and select a 2975-9229 (red) or 2975-9230 (beige) cabinet (field installed); refer to data sheet S4100-0037 for cabinet detail; Supervisory and Alarm current = 87 mA; (CSFM listed under 7300-0026:0368)					
4100-0636	Box Interconnection Harness Kit (non-audio); **order one for each close-nippled cabinet**					
4100-0638	4100 Slot Module Additional 24 VDC Harness; **need when 4100 Slot module requirements exceed 2 A from SPS**					

8 Zone Initiating Device Circuits*

Model	Type	Supv.	Alarm
4100-5005	Class B	75 mA	195 mA
4100-5015	Class A	75 mA	195 mA

* IDC Modules are 1 Slot size

Expansion Signal Module and Options (1.5 A Class B except as noted)

Model	Description		Supv.	Alarm
4100-5116	Converts 1 NAC in to 3 NACs out; 1 Block size		18 mA	80 mA
4100-1266	Expands 3 NACs to 6	select one; mounts on 4100-5116	0.6 mA	60 mA
4100-1267	Converts 3 NACs to Class A		0.6 mA	30 mA

Continued on next page

Module Selection Information *(Continued)*

Miscellaneous Accessories

Model	Description
4100-1279	Single blank 2" display cover; **4100-2302** provides a single plate for a full bay
4100-9856*	4100ES Canadian French Appliqué Kit; Simplex, 4100ES, Controle Incendie
4100-9857*	4100ES English Appliqué Kit; Simplex, 4100ES, Fire Control
4100-9858*	4100ES InfoAlarm Remote Display English Appliqué Kit; Simplex, Operator Interface, 4100ES
4100-9859*	4100ES InfoAlarm Remote Display Canadian French Appliqué Kit; Simplex, Interface de l'operateur, 4100ES
4100-9835	Termination and Address Label Kit (for module marking); provides additional labels for field installed modules
4100-6029	Smoke Management Application Guide; **required for UUKL listing**
4100-6034	Tamper Switch, one per cabinet assembly if required; monitors solid door for panels with solid door; monitors the internal retainer panel for panels with glass door (not the glass door); has a built-in addressable IDNet IAM
2081-9031	Series resistor for WSO, IDCs (N.O. water flow and tamper on same circuit, wires after water flow and before tamper) 470 Ω, 1 W, encapsulated, two 18 AWG leads (0.82 mm^2), 2-1/2" L x 1-3/8" W x 1" H (64 mm x 35 mm x 25 mm)

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

Addressable Interface Modules (refer to location reference on pages 8 and 9)

Model	Description		Supv.	Alarm
4100-3101	IDNet Module, 250 point capacity	With 250 IDNet devices, add	200 mA	250 mA
4100-3104	IDNet Module, 127 point capacity	With 127 IDNet devices, add	102 mA	127 mA
4100-3105	IDNet Module, 64 point capacity	With 64 IDNet devices, add	51 mA	64 mA
IDNet Modules, Specifications for each capacity; Module size = 1 Block		Module without devices	75 mA	115 mA
		Loading per IDNet device	0.8 mA	1 mA

Model	Description		Supv.	Alarm
4100-3102	MAPNET II Module, 127 point capacity, add devices separately; Module size = 2 Slots; Loading per MAPNET II device = 1.7 mA	Module without devices	255 mA	275 mA
		Fully loaded module, total	471 mA	491 mA
4100-3103	Isolator Module **for MAPNET II or IDNet**; converts a single connected SLC into four isolated outputs selectable as Class A or Class B; up to two Isolator Modules can be connected to one SLC; Module size = 1 Slot; **NOTE:** Compatible with MAPNET II Remote Isolators only; for quad isolation with IDNet Remote Isolators, use 4100-3107 IDNet+ Module (see data sheet S4100-0046 for details)		50 mA	50 mA

Relay Modules; Nonpower-limited (for mounting in expansion bay only, refer to location reference on pages 8 and 9)

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

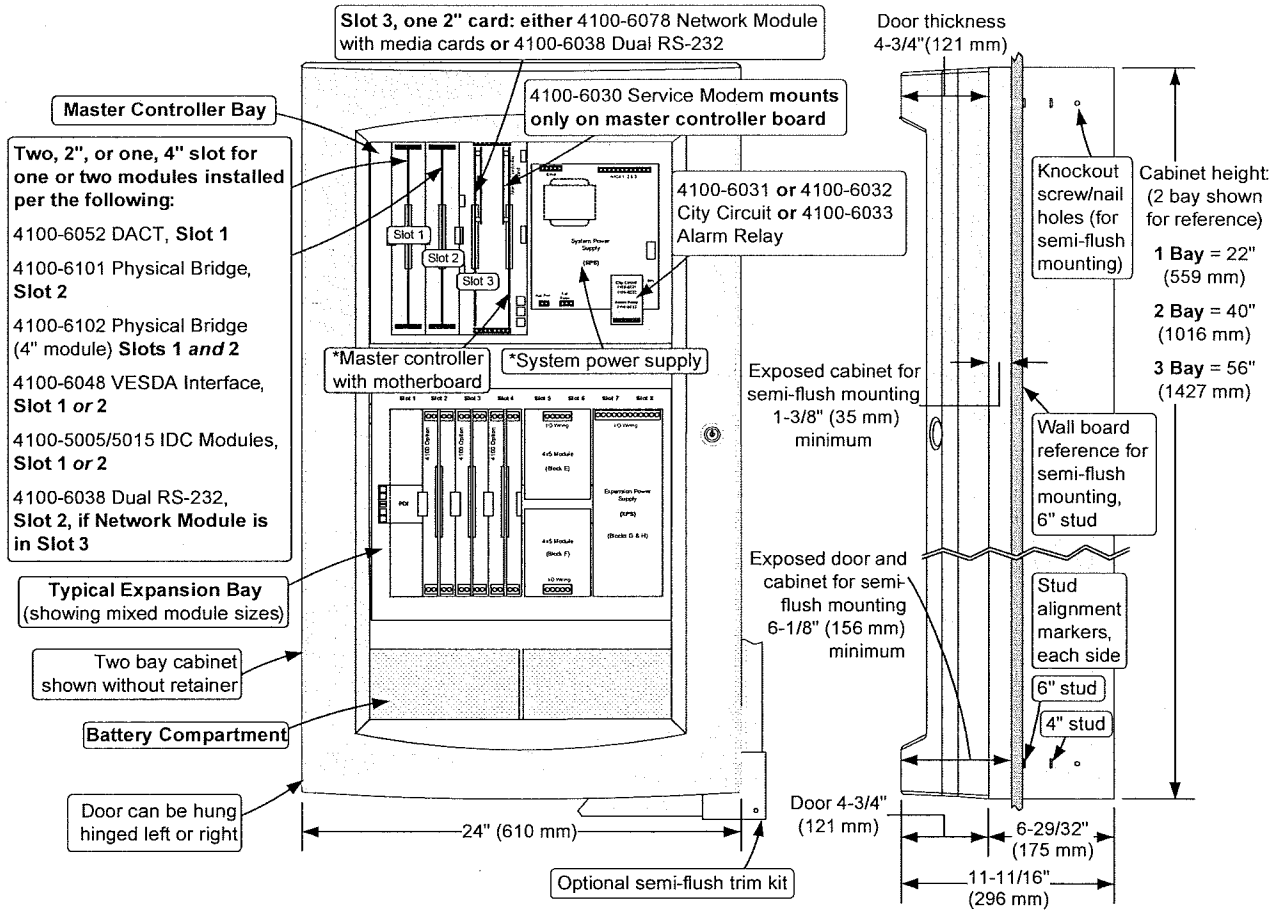
Current Calculation Notes:

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

General Specifications

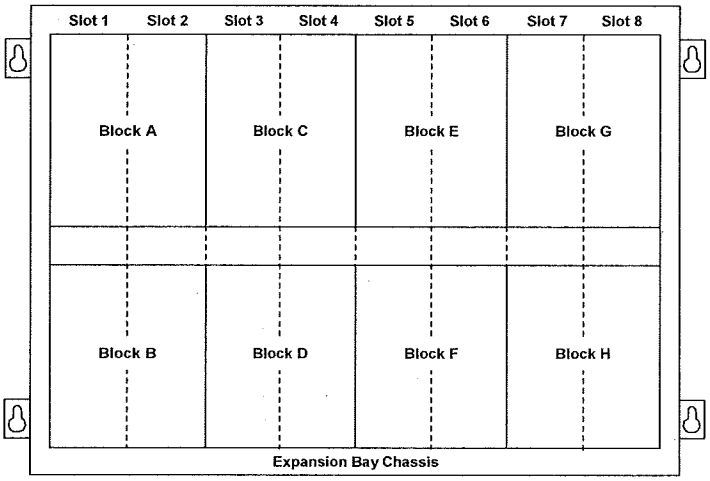
Input Power	System Power Supplies (SPS) Expansion Power Supplies (XPS) Remote Power Supplies (RPS) TrueAlert Power Supplies (TPS)	120 VAC Models	4 A maximum @ 102 to 132 VAC, 60 Hz	
		220-240 VAC Models	2 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC	
Power Supply Output Ratings for SPS, XPS, and RPS (nominal 28 VDC on AC; 24 VDC on battery backup)	Total Power Supply Output Rating	**Including module currents and auxiliary power outputs;** 9 A total for "Special Application" appliances; 4 A total for "Regulated 24 DC" power (see below for details)		Output switches to battery backup during mains AC failure or brownout conditions
	Auxiliary Power Tap	2 A maximum	Rated 19.1 to 31.1 VDC	
	NACs Programmed for Auxiliary Power	2 A maximum per NAC; 5 A maximum total		
Special Application Appliances	Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)			
Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required			
Battery Charger Ratings for SPS, RPS and TPS (sealed lead-acid batteries)	Battery capacity range	UL listed for battery charging of 6.2 Ah up to 110 Ah (110 Ah batteries require a remote battery cabinet); ULC listed for charging up to 50 Ah batteries		
	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		
Environmental	Operating Temperature	32° to 120°F (0° to 49° C)		
	Operating Humidity	Up to 93% RH, non-condensing @ 90° F (32° C) maximum		
Additional Technical Reference	Installation Instructions	574-848		
	Operating Instructions	579-197		

Mounting and CPU Bay Module Reference (* indicates supplied modules)



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.

Expansion Bay Module Loading Reference



Size Definitions: Block = 4" W x 5" H (102 mm x 127 mm) card area
Slot = 2" W x 8" H (51 mm x 203 mm) motherboard with daughter card

Description		Mounting
IDNet Modules		1 Block
4, 2 A Relays	NON Power-limited	1 block
4, 10 A Relays		4", 2 slots
8, 3 A Relays		1 block
VESDA Interface		2", 1 Slot
Class B IDC		2", 1 Slot
Class A IDC		2", 1 Slot
MAPNET II Module		4", 2 Slots
MAPNET II/IDNet Isolator		2", 1 Slot
Class B Physical Bridge		2", 1 Slot
Class X Physical Bridge		4", 2 Slots
Decoder Module		6", 3 Slots
System, Remote, or TrueAlert Power Supply		Blocks E, F, G & H ONLY
Expansion Power Supply		Blocks G & H ONLY
NAC Expansion Module		On XPS ONLY

Additional 4100ES Data Sheet Reference

Subject	Data Sheet	Subject	Data Sheet
Introducing the 4100ES	*S4100-0060*	Agent Release Applications	S4100-0040
4100ES Enclosures	S4100-0037	Fire Alarm Network Overview	S4100-0055
4100ES Audio and Firefighter Phone Modules	S4100-0034	Network Communications	S4100-0056
LED/Switch Modules & Printer	S4100-0032	Network Display Unit (NDU)	S4100-0036
Remote Annunciators	S4100-0038	Addressable Device Compatibility	S4090-0011
MINIPLEX Transponders	S4100-0035	TrueAlert Addressable Products	S4009-0003
Building Network Interface (BNIC)	S4100-0061	IDNet+ Module w/Quad Isolator	S4100-0046
InfoAlarm Command Center	S4100-0045	Remote Battery Charger	S4081-0002
Graphic I/O Modules	S4100-0005	TFX Interface Module	S4100-0042
SafeLINC Internet Interface	S4100-0028	Master Clock Interface	S4100-0033
TrueInsight Remote Service	S4100-0063	2120 BMUX Module	S4100-0048

Simplex

Tyco Fire Protection Products • Westminster, MA • 01441-0001 • USA

S4100-0031-20 9/2012

www.simplexgrinnell.com

429 Hayden Station Road
Suite C
WINDSOR, CT 06095
(860) 602 3200
FAX: (860) 683 8506
www.simplexgrinnell.com

SimplexGrinnell Material List (THIS IS NOT A PRICE QUOTATION)

TO:
Estimating Department 129
80 Clark Dr Unit 5d
From Simplexgrinnell 129
EAST BERLIN, CT 06023-1157

Project: Enfield Courthouse
Customer Reference:
SimplexGrinnell Reference: 129422654
Date: 12/03/2015

QUANTITY	MODEL NUMBER	DESCRIPTION
	Enfield Courthouse	
	Enfield Courthouse	
1	4100-9111	4100ES PRECONFIG DOMESTIC 120V
1	4100-0634	POWER DISTRIBUTION MODULE 120V
1	4100-0638	ADDITIONAL 24V HARNESS
8	4100-1279	2 BLANK DISPLAY MODULE
1	4100-2300	EXPANSION BAY (PHASE 10 ONLY)
1	4100-2303	LEGACY CARD STABILIZER BRKT
1	4100-3206	8 POINT 3 AMP AUX RELAY MODULE
2	4100-5005	ZONE MODULE, 8 IDC, CLASS B
1	4100-5101	XPS POWER, 3 NACS, 120VAC
1	4100-6052	EVENT/POINT REPORTING DACT
1	41002152	INDICATOR ONLY 2BAY GLASS
1	41007905	FACTORY BUILT-MAIN CONFIGURED
	Enfield Courthouse	
1	2975-9445	2 BAY BB/GDOOR/DRESS PNL PLAT
2	2081-9276	BATTERY 33AH
40	4098-9756	DUCT SENSOR HOUSING-4-WIRE
40	4098-9857	SAMPLING TUBE 73", PLASTIC
40	2098-9806	REMOTE TEST STATION
1	4603-9101	LCD ANNUNCIATOR
1	2975-9206	6 GANG BOX, IVORY, 5744-6
	Professional Services - Enfield Courthouse	
4	DSGN LAB	DESIGN LABOR
8	CAD LAB	CAD LABOR
8	PM LAB	PROJECT/CONSTRUCTION MGMT
	Technical Services - Enfield Courthouse	
40	COMM LAB	Commissioning Labor

Comments

Please read the notes below and call if you have any questions.

Contact Information:
David Barton
Electronic System Sales Representative

SimplexGrinnell Material List (THIS IS NOT A PRICE QUOTATION)

Comments (continued)

860-438-3221
dabarton@simplexgrinnell.com <mailto:dabarton@simplexgrinnell.com>
SimplexGrinnell, LP
80 Clark Drive, Unit 5d
East Berlin, CT 06023

SimplexGrinnell's Scope of Work:

SimplexGrinnell (SG) will provide equipment, programming labor and final certification for new 4100ES Addressable Fire Alarm System platform and 40 duct smoke detectors to replace the existing obsolete 2001 fire alarm control panel. All other existing peripheral devices are to remain and be reused with the new fire alarm control panel.

Exceptions and/or Clarifications:
SimplexGrinnell has configured our equipment to satisfy the design as indicated on the design documents. SimplexGrinnell is not responsible for the design of this project. Additional devices may be deemed necessary by the AHJ and could result in additional cost.

The electrical contractor will provide and install all conduit and boxes (including the installation of SimplexGrinnell provided weatherproof boxes and cabinets), pull strings, flexible piping, box blank covers, electrical breakers, terminal cabinets, breaker locks, wire, devices, terminations.

THIS PROPOSAL IS BASED UPON ONLY THOSE ITEMS DENOTED BY [X]":

[] Specification section
[] Information from plans
[] Up to and including addendum:
[X] Customer provided bill of material
[X] Verbal request
[] Value engineering
[] Design Build

THIS QUOTATION INCLUDES ONLY THOSE ITEMS DENOTED BY "[X]":

[X] Equipment as listed
[] Demolition of existing fire alarm devices
[] CT State Sales Tax
[X] Freight (F.O.B. shipping point)
[X] Submittal and Risers
[] PE Sealed Drawings
[] Panel terminations
[X] Technical installation support including programming
[] Permit
[] Inspection Fees
[] Payment/Performance Bonds

SimplexGrinnell Material List (THIS IS NOT A PRICE QUOTATION)

Comments (continued)

[X] 1 functional system certification test
[X] 1 AHJ test
[] 1 10% Re-Test
[] 1 Separate Elevator Test
[] 2 Hours of operation and maintenance training
[X] Close out documentation
[] Interface to non-SimplexGrinnell provided equipment i.e.: HVAC and elevator
[X] One year warranty
[] Monitoring
[] AHCA Inspection

THIS QUOTATION DOES NOT INCLUDE THE FOLLOWING:

Phased Checkout
Raceway or standard electric boxes
120vac power
Fire protection switches or gas solenoids
Phone lines
Remote station monitoring contract (available upon request)
Cutting, drilling, patching, fire caulking or painting
Interface to non-SimplexGrinnell provided equipment i.e.: HVAC and elevator
Fire watch
Weatherproof and conditioned control equipment housing

It is SimplexGrinnell's (SG) understanding that these drawings and specifications represent the work to be accomplished in its entirety and no additional work or materials is expected or required. This quote covers direct costs only and we reserve the right to claim for impact and consequential costs.

SCHEDULE MILESTONES:

Configured Submittals and Shop-drawings: 21 Days to develop upon Receipt of P.O
Fab and Delivery of Equipment- non standard Equipment/BackBoxes: 21 Days
Fab and Delivery of Equipment- Field Devices: 7 Days
Fab and Delivery of Panels/Transponders: 14 Days
Electrical Contractor Mechanically/Electrically complete -14 days from project completion to Commission System.
TIME IS OF THE ESSENCE with regard to this quotation as it relates to the project schedule which is [X] known [ ] unknown at this time.

ADDITIONAL NOTES:

If SimplexGrinnell is awarded this project we will need:

- A complete set of bid documents including all specifications and any addendums
- An electronic CAD file in AutoCAD shall be sent to josmorris@simplexgrinnell.com <mailto:jomorris@simplexgrinnell.com> or mailed to the branch address provided on this quotation.

SimplexGrinnell Material List (THIS IS NOT A PRICE QUOTATION)

Comments (continued)

- A complete schedule
- A copy of the "Notice of Commitment"
- Your P.O. or contract will need to reference this proposal # and amount. This proposal and its terms and condition shall take precedence. Your Purchase Order or contact is subject to review and must be mutually agreeable.

Quotation is valid for a period of 30 days ONLY unless modified in writing by SimplexGrinnell.

All work is to be performed during normal SimplexGrinnell hours of 8am to 5pm Monday through Friday with the exception of company sponsored holidays unless specifically noted otherwise.
We reserve the right to correct this quote for errors and omissions.

As stated above, SimplexGrinnell will perform the work pursuant to the attached Terms and Conditions. Should the parties fail to execute a mutually agreeable definitive agreement, all work performed by SimplexGrinnell on or related to the above captioned project (with the exception of any monitoring services anticipated, which will only be performed pursuant to the unaltered terms and conditions of SimplexGrinnell's standard Monitoring Agreement) will be performed pursuant to the attached Terms and Conditions.

Please indicate your approval of this quotation by signing the last page and returning to my attention as noted below.

David Barton
Electronic Systems Sales
Phone: (860)602-3171
Cell: (860)367-5582
Fax: (860)683-8506
Email: dabarton@simplexgrinnell.com <mailto:dabarton@simplexgrinnell.com>
AA/EOE

Simplex

TrueAlarm® Analog Sensing

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

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

Features

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

Includes factory installed TrueAlarm photoelectric smoke sensor and features:

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

Model 4098-9755:

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

Model 4098-9756:

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

General features:

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

Diagnostic LEDs (on interface board):

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

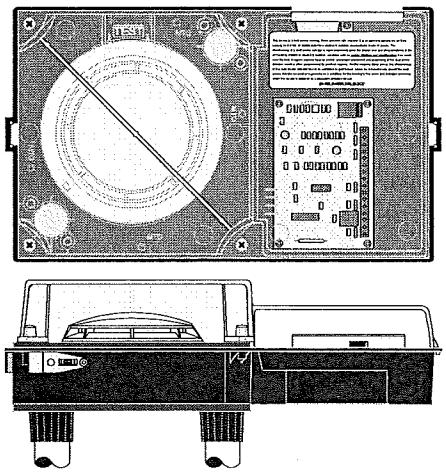
Sampling tubes (ordered separately):

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

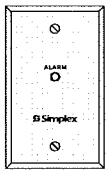
Remote module options (ordered separately):

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

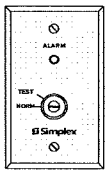
* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 3240-0026:241 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.



Duct Sensor Housing, Front and Bottom View



2098-9808



2098-9806

Remote Status/Alarm Indicator and Test Station

Introduction

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

TrueAlarm Sensor Operation

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

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

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

† TrueAlarm sensors and IDNet and MAPNET II communications are protected by one or more of the following U.S. Patents: 5,155,468; 5,173,683; 5,543,777; 5,400,014; 5,543,777; 5,710,541; D383,407; D388,352; D392,573; 4,796,025.

TrueAlarm Sensor Operation *(Continued)*

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

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

Photoelectric Sensing

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing.

Photoelectric Sensing *(Continued)*

Typically duct sensor applications require less sensitive settings (such as 2.5% per foot obscuration) due to the ducts being a relative dirty environment. However, the standard seven levels of TrueAlarm sensor sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

Fire Alarm Control Panel Features

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

Duct Sensor Selection Chart

Duct Smoke Sensor Housing with Photoelectric Sensor*

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

Remote LED Indicator and Test Station, Select One if Required

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

Epoxy Encapsulated Remote Relay and End-of-Line Resistor

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

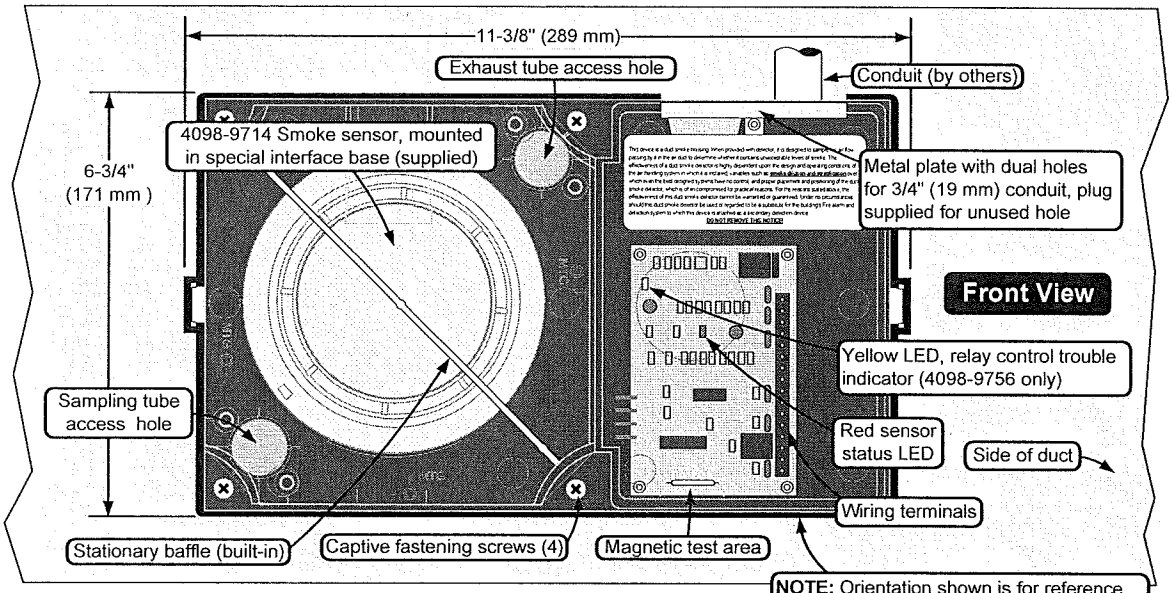
* Each duct housing includes an internally mounted model 4098-9714 TrueAlarm photoelectric sensor and an exhaust tube. A correctly sized sampling tube (ordered per application) is required, refer to chart below.

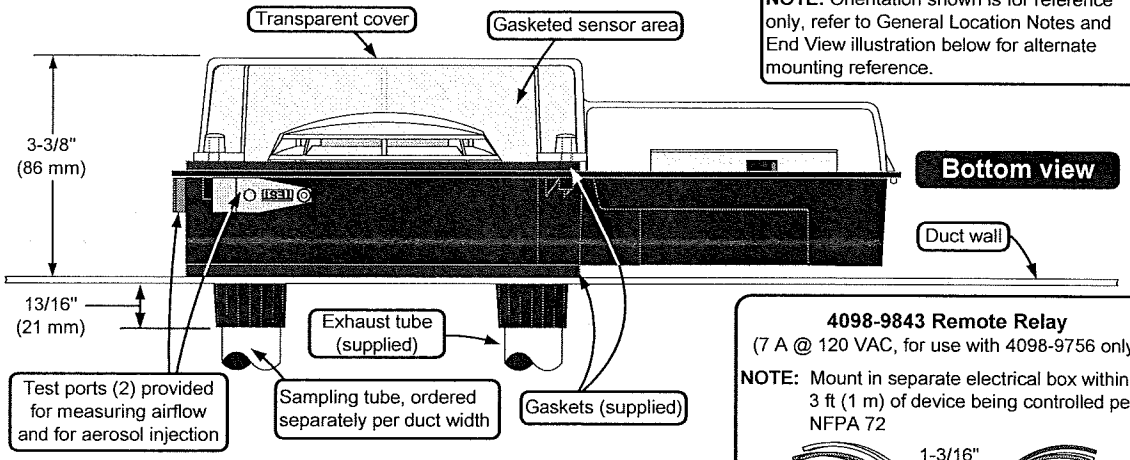
Sampling Tube Selection Chart, Ordered Separately Per Duct Width, Select One

Overall Duct Width	Tube Required	Suggested Cut Length
12" (305 mm)	**2098-9796**	1/2" (12.7 mm) longer than duct width
13" to 23" (330 mm to 584 mm)	**2098-9804**	1/2" (12.7 mm) longer than duct width
24" to 46" (610 mm to 1168 mm)	**2098-9797**	2" (51 mm) longer than duct width
46" to 71" (1168 mm to 1803 mm)	**2098-9798**	2" (51 mm) longer than duct width
71" to 95" (1803 mm to 2413 mm)	**2098-9799**	2" (51 mm) longer than duct width

Duct Sensor Housing Detail Reference

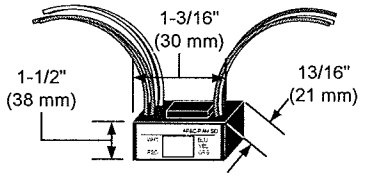
NOTE: Refer to Installation Instructions 574-776 for additional installation detail and maintenance information.

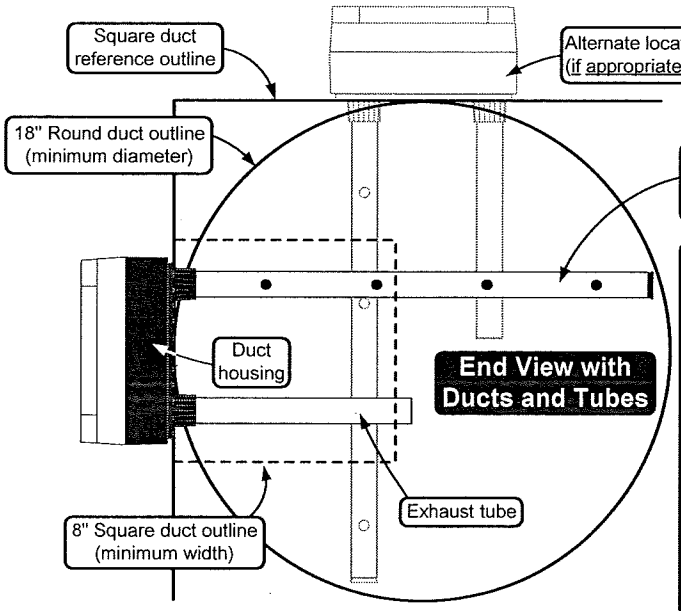




4098-9843 Remote Relay
(7 A @ 120 VAC, for use with 4098-9756 only)

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

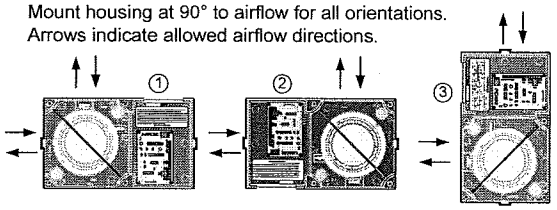




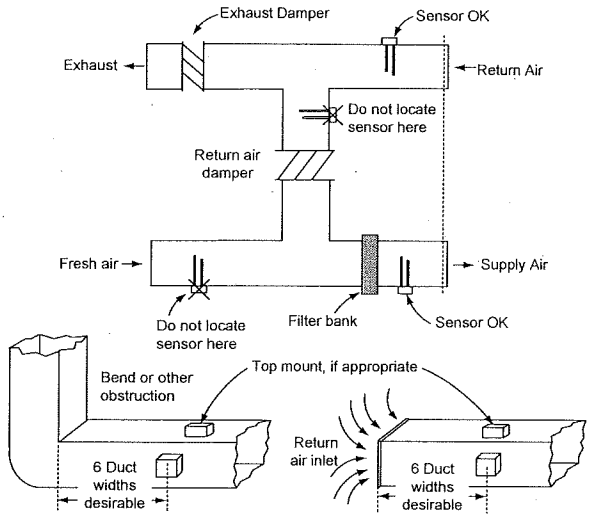
Sampling tube, keyed for proper hole alignment **with holes facing into airflow** (template is provided for proper tube installation). (Housing is shown as position 2 per note 2 below.)

General Location Notes:

1. Testing performed under the auspices of the Fire Detection Institute (FDI) recommended when sampling tubes are not located vertically, that they be positioned horizontally in the upper half of the duct to account for possible stratification.
2. Three duct side mounting options are available as shown below. Mount housing at 90° to airflow for all orientations. Arrows indicate allowed airflow directions.



Duct Sensor Location Reference



Additional Information. Refer to NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*; NFPA 72®, the *National Fire Alarm Code*®; and the *NEMA Guide for Proper Use of Smoke Detectors in Duct Applications*, and Installation Instructions 574-776.

Duct Sensor Location Considerations:

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

Locations to Avoid:

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

Specifications

General Mechanical and Environmental	
Air Velocity Range (linear ft/min)	300 to 4000 ft/min (91 to 1220 m/min)
Sensor Sensitivity Range	0.2% to 3.7% per foot of obscuration, selectable at host control panel
UL Listed Temperature Range	32° F to 100° F (0° C to 38° C)
Operating Temperature Range	32° F to 122° F (0° C to 50° C)
Storage Temperature Range	0° F to 140° F (-18° C to 60° C)
Humidity Range	10% to 95% RH, non-condensing
Wiring Connections	Terminal blocks, 18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Housing Color	Black base with clear cover
Remote Status/Alarm LED and Test Station with Remote Status/Alarm LED	
Remote Alarm LED Current	1.2 mA, no impact to 24 VDC alarm current (2098-9808 or 2098-9806)
Test Station Keyswitch Current	3.3 mA, no impact to 24 VDC alarm current (2098-9806)
Remote Alarm LED and Test Station Distance	250 ft (76 m) maximum
Addressable Operation	
Data Communications	IDNet or MAPNET II communications, auto-select, one address per housing; provides operating power to model 4098-9755
Model 4098-9756 with Supervised Multiple Relay Control, Requires Separate Fused 24 VDC from Fire Alarm Power Supply	
Input Voltage	18-32 VDC (24 VDC nominal)
Standby Current	3 mA @ 24 VDC
Alarm Current (one relay activated)	15 mA @ 24 VDC; add 15 mA for each additional remote 4098-9843 relay
Supervised Remote Relay Control Output	For use with 4098-9843 relay only, quantity of 15 maximum; distance of 500 ft (152 m) maximum; requires 4081-9008 (ref. 733-894) 10 kΩ, 1/2 W end-of-line resistor
4098-9843 Relay Output Ratings, Single Form C, use with Model 4098-9756 Only	
Coil Current	15 mA @ 24 VDC, up to 15 maximum per relay control output
Relay Contacts	7 A at 0.35 PF @ 28 VDC & 120 VAC; 250 μA @ 5 VDC
Location Distance	500 ft (152 m) maximum to relay coils; locate relays within 3 ft (1 m) of device being controlled per NFPA 72