

Features

Up to 250 addressable TrueAlarm or IDNet points**

Four, 2 A notification appliance circuits (NACs)
with solid state current protection

UL listed to Standard 864

Installation convenience features:

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

Setup, programming, and maintenance features:

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

Supports the following IDNet devices** :

- Addressable manual stations
- Quad-state zone adapter modules (ZAMs) for initiating device monitoring
- IDNet ground fault/short circuit isolator base for TrueAlarm sensors
- Quad-state line powered individual addressable modules (IAMS) for initiating device monitoring and relay control

Available option modules include:

- Simplex 4120 Network, DACT, or City interface
- Equipment for Suppression Release Applications (refer to data sheet S4010-0003)
- RS-232 ports for printers or maintenance terminal
- Class A NAC adapter module
- Additional power supply

Compatible with Simplex:

- TrueAlert™ Addressable Controllers and NAC power extenders (IDNet controlled and conventional)
- 4003 Voice Control Panel
- 4081 Battery Cabinet with charger for 50 Ah batteries

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



4010 TrueAlarm Fire Alarm Control Panel

Description

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

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

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

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

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

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7170-0026:226 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable, contact Simplex for the latest status.

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

4010 Operator Control Summary

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

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

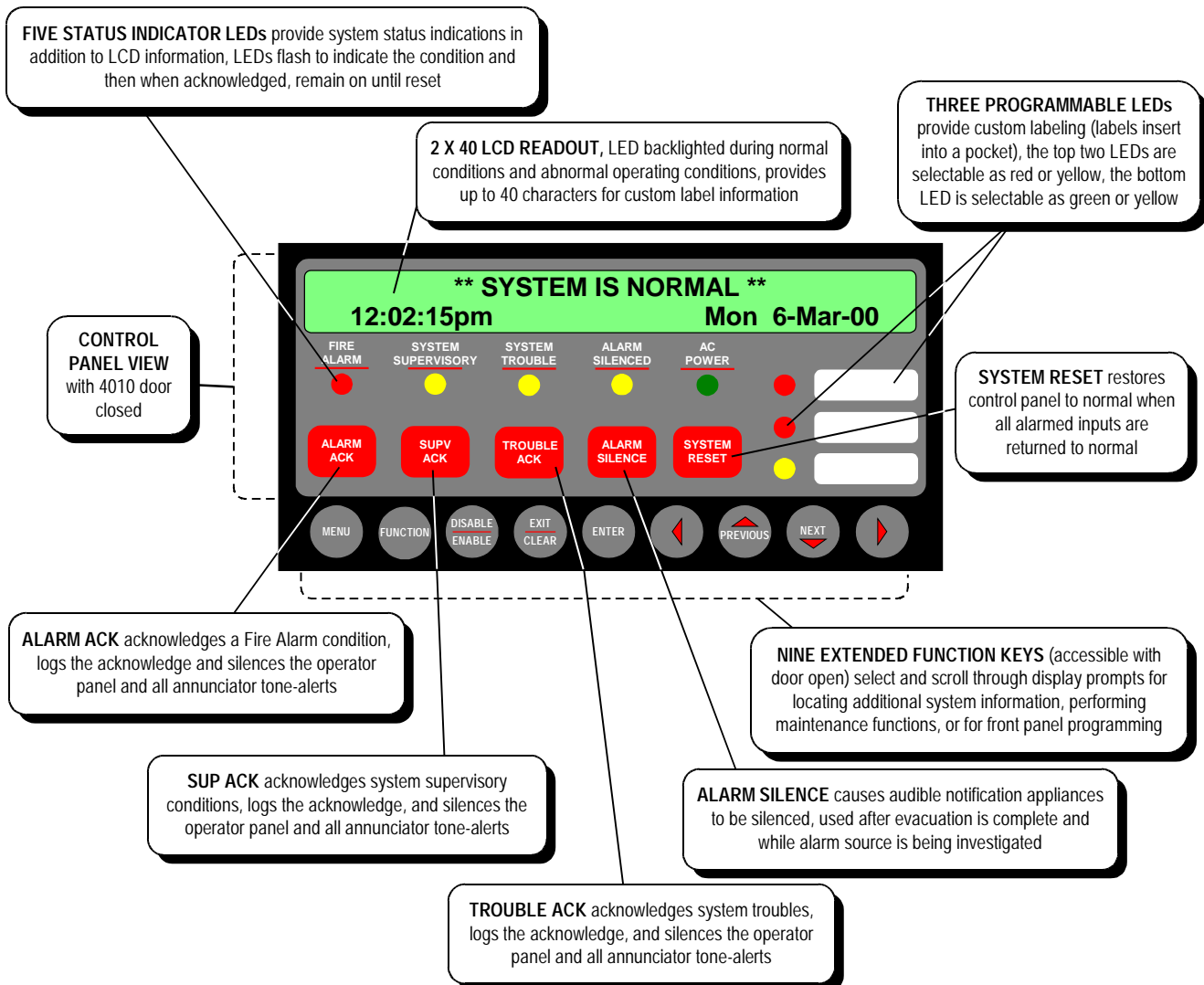
4010 Display Panel and Diagnostic Mode

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

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

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

Extended Operator Control Panel Functions



IDNet Addressable Interface

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

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

IDNet Addressable Operation. The IDNet controller continuously interrogates each addressable device on the communication channel for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuit for Class B (Style 4) operation.

Wiring. Up to 10,000 total feet (3048 m) of twisted, shielded 18 AWG wire may be connected to the IDNet channel. The distance from the panel to the farthest device may be up to 2500 feet (762 m). Unshielded wire may be used in certain retrofit applications. IDNet wiring can be either Class B (Style 4) or Class A (Style 6) depending on the system requirements.

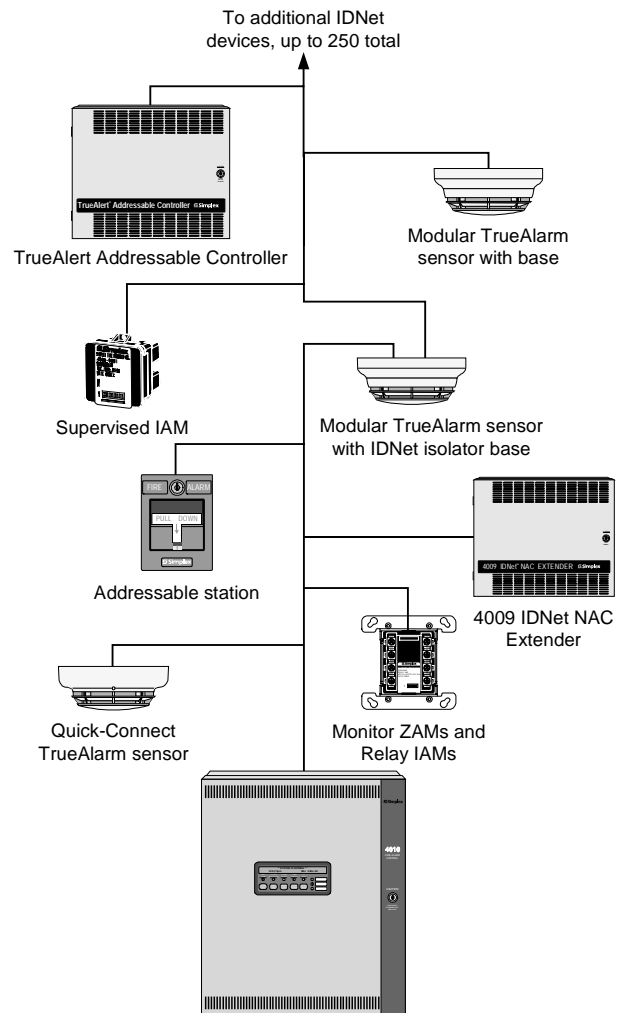
TrueAlarm Analog Sensors

TrueAlarm System Operation. IDNet communications are used for TrueAlarm smoke and temperature sensors. Every four seconds, smoke sensors transmit an output value based on their smoke chamber condition. The 4010 CPU maintains a current value, peak value, and an average value of each sensor's output. Status is determined by comparing the current sensor value to its average value. Tracking this average value as a continuously shifting reference point filters out environmental factors that cause shifts in sensitivity.

Programmable Sensitivity. The sensitivity of each sensor can be field programmed at the 4010 Control Panel for different levels of smoke obscuration (in percent) or for specific heat detection levels. In order to evaluate whether the sensitivity should be revised, the peak value is stored in memory and can be easily read and compared to the alarm threshold directly in percent.

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

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



4010 Control Panel with Typical IDNet Devices

Diagnostics and Default Device Type

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

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

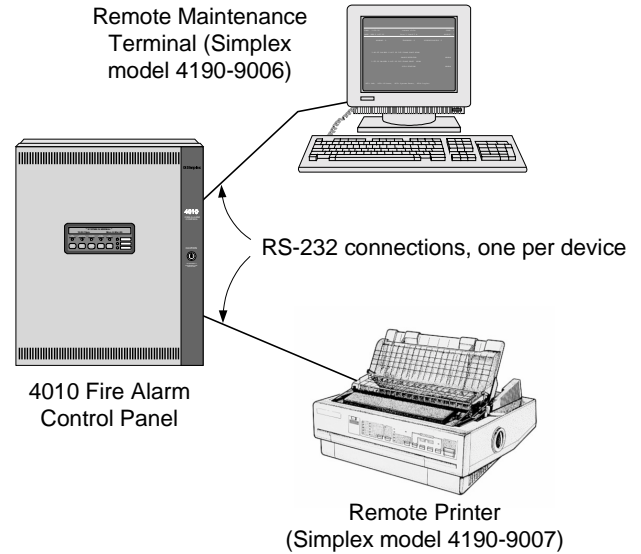
TrueAlarm Information Details

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

The figures below illustrate the format provided on either the remote maintenance terminal or a printer. This information is available at the system LCD by identifying the specific point of interest and reading one point at a time.

Compatible RS-232 devices include the Simplex model 4190-9006 Terminal and the Simplex model 4190-9007, 80 column, 24 pin dot matrix printer. (The 2190-9039, 24 VDC, 40 column printer is compatible with the 4010 for event printing only.)

(Contact Simplex for information on the complete line of TrueAlarm analog sensing products.)



4010 Fire Alarm Control Panel
RS-232 Connection Options

TrueAlarm Status and Service Report Samples

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Simplex 4010 Fire Alarm System
REPORT 3 : TrueAlarm Status Report
Page 1
2:43:03 pm Mon 6-Mar-00

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

END OF REPORT
    
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Typical TrueAlarm Status Report Information Printout and/or Maintenance Terminal Screen

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Simplex 4010 Fire Alarm System
REPORT 4 : TrueAlarm Service Report
Page 1
2:56:09 pm Mon 6-Mar-00

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

END OF REPORT
    
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Typical TrueAlarm Service Report Information Printout and/or Maintenance Terminal Screen

Standard Panel Features

N2 Communications for Serial Annunciator

Control. Control for up to 6 remote Simplex Annunciator products including 24 Point I/O Module, and LCD Annunciator. Includes extensive troubleshooting diagnostics.

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

IDNet Addressable Communications Channel.

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

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

NAC operation can be selected for “on-until-Silence” or “on-until-Reset,” and can be Temporal pattern, 60 or 120 bpm March Time pattern, or continuous. Each NAC is also individually selectable to control Simplex synchronized visible notification appliances and to control audible notification appliances using SmartSync™ control, allowing separate audible and visible appliance operation using a common 2-wire circuit. (Contact Simplex for more information.)

Two Auxiliary Output Circuits. Operation is programmable for trouble, alarm, supervisory, or other fire response functions. Output is one form “C” dry contact each, rated 2 A @ 24 VDC. An optional relay kit is available for switching up to 1/2 A at 120 VAC.

Power Supply. Standard output is 4 A @ 28 VDC, filtered, non-regulated. Internal system power is provided separately, allowing the 4 A to be available for NAC and auxiliary power tap functions. Over-current protection is solid state and self-resetting.

Auxiliary Power Tap. Provides up to 1/2 A of the standard power supply voltage, over-current protected.

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

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

Optional Expansion Slot Modules

(The 4010 is available with a Simplex 4120 Network Interface. 4010 points can be declared “public.”)

4120 Network Interface, Fixed Media. Available for wired applications.

4120 Network Interface, Modular Media. Available for wired connections or fiber optic. Require separate

media modules. May be both wired, both fiber optic, or one of each.

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

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

Dual RS-232 Module. Available for interfacing to printers or a maintenance terminal.

Single RS-232 Module with Service Modem

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

Optional Chassis Mount Modules

Standard 4 A Expansion Module. Provides two taps of 2 A each, 28 VDC, filtered, non-regulated, similar to the standard power supply capacity.

Suppression Release Power Supply. This module provides two taps of 2 A each, regulated at 24 VDC \pm 10%. Also included is a suppression release appliqué. (This module may also be used for other applications requiring regulated voltage.)

Battery Meter Module. Provides ammeter and voltmeter for power supply monitoring.

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

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

Expansion Power Distribution Module. This module provides two additional termination points for the 1/2 A auxiliary power output, or for one tap of the expansion power supply.

External N2 Communications Modules

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

4606-9101 LCD Annunciators provide remote acknowledge, reset, and alphanumeric status display. (Refer to data sheet S4606-0001.)

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

4010 Operating Specifications

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

Environmental

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

Output Ratings

Standard Power Supply Output	4 A total @ nominal 28 VDC	Output switches to battery backup during mains failure or brownout conditions
Auxiliary Power Tap	1/2 A maximum of standard power supply voltage	
Expansion Power Supply Output *	Additional 4 A @ nominal 28 VDC	
Suppression Release Power Supply Output *	Additional 4 A @ 24 VDC ±10%	

* Each power supply provides two output taps of 2 A each.

Current Ratings for Optional Modules and Remote LCD Annunciator

Model	Module	Supervisory Current	Alarm Current
4010-9810	DACT (Common Event Reporting)	40 mA	40 mA
4010-9816	DACT (Point Reporting)	40 mA	40 mA
4010-9821	4120 Network, wired communications	125 mA	125 mA
4010-9817	4120 Network Modular, add media cards separately	24 mA	24 mA
4010-9818	4120 Network Wired Media	47 mA	47 mA
4010-9819	4120 Network Fiber Optic Media	36 mA	36 mA
4010-9811	Dual RS-232	75 mA	75 mA
4010-9812	Single RS-232 with Service Modem	100 mA	100 mA
4010-9806	Dual Class A NAC Adapter	0 mA	0 mA
4010-9809	Dual Circuit City Connect	20 mA	36 mA
4010-9829	Dual Circuit City Connect w/o disconnect switches	20 mA	36 mA
4606-9101	Remote LCD Annunciator (refer to data sheet S4606-0001)	65 mA	140 mA

System Current (supplied separate from power supply output)

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

** Current Calculation Information:

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

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

Category	Model*	Description	Voltage	Color
Control Panel Assembly (select one)	4010-9101	4010 Fire Alarm Control Panel with: door, cabinet, power supply/battery charger, IDNet interface, 4 NACs, 2 auxiliary relays, and external N2 communications interface	120 VAC	Beige
	4010-9102			Red
	4010-9201		240 VAC	Beige
	4010-9202			Red
	4010-9150	4010 Fire Alarm Control Panel electronics only , for pre-shipped cabinets, requires door	120 VAC	NA

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

Category	Model	Description	
Reporting and Network Modules (select one)	4010-9810	DACT Module (Common Event Reporting)	Includes two, 7 ft long RJ45 cables
	4010-9816	DACT Module (Point Reporting)	
	4010-9821	4120 Network Interface Module with fixed, wired connections	
	4010-9817	4120 Network Interface Module, Modular, requires 2 media modules	
RS-232 Communications (select one)	4010-9811	Dual RS-232 Interface Module	
	4010-9812	Single RS-232 Interface Module with Service Modem connection	
Media Modules (select 2 if using 4010-9817)	4010-9818	4120 Network Wired Media Module	Media modules mount on the 4010-9817 module without impact to slot allocation space.
	4010-9819	4120 Network Fiber Optic Media Module	

Chassis Mounted Expansion Modules (select as required)

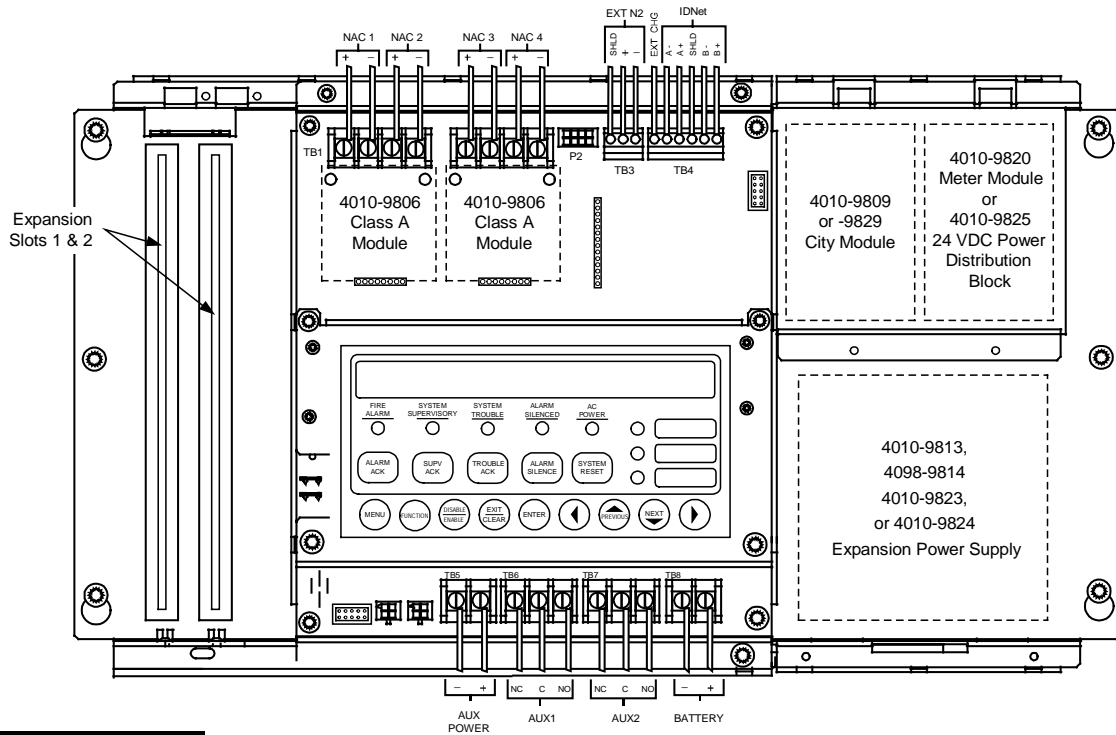
Category	Model	Description	
Additional Power Supply (select one)	4010-9813	4 A Expansion Power Supply	120 VAC input
	4010-9823		240 VAC input
	4010-9814	Suppression Release Power Supply, 4 A @ 24 VDC, regulated $\pm 10\%$, includes front panel suppression system appliqué	120 VAC input
	4010-9824		240 VAC input
Optional Features (select one)	4010-9820	Battery Meter Module, Ammeter and Voltmeter	
	4010-9825	24 VDC Expansion Power Distribution Module, provides two additional termination points for an expansion power supply tap or the auxiliary power output	
Optional Features	4010-9806	Dual Circuit Class A (Style Z) NAC Adapter Module, 2 maximum	
	4010-9809	Dual Circuit City Connect Module	select 1 maximum
	4010-9829	Dual Circuit City Connect Module w/o disconnect switches	

Accessories (select as required)

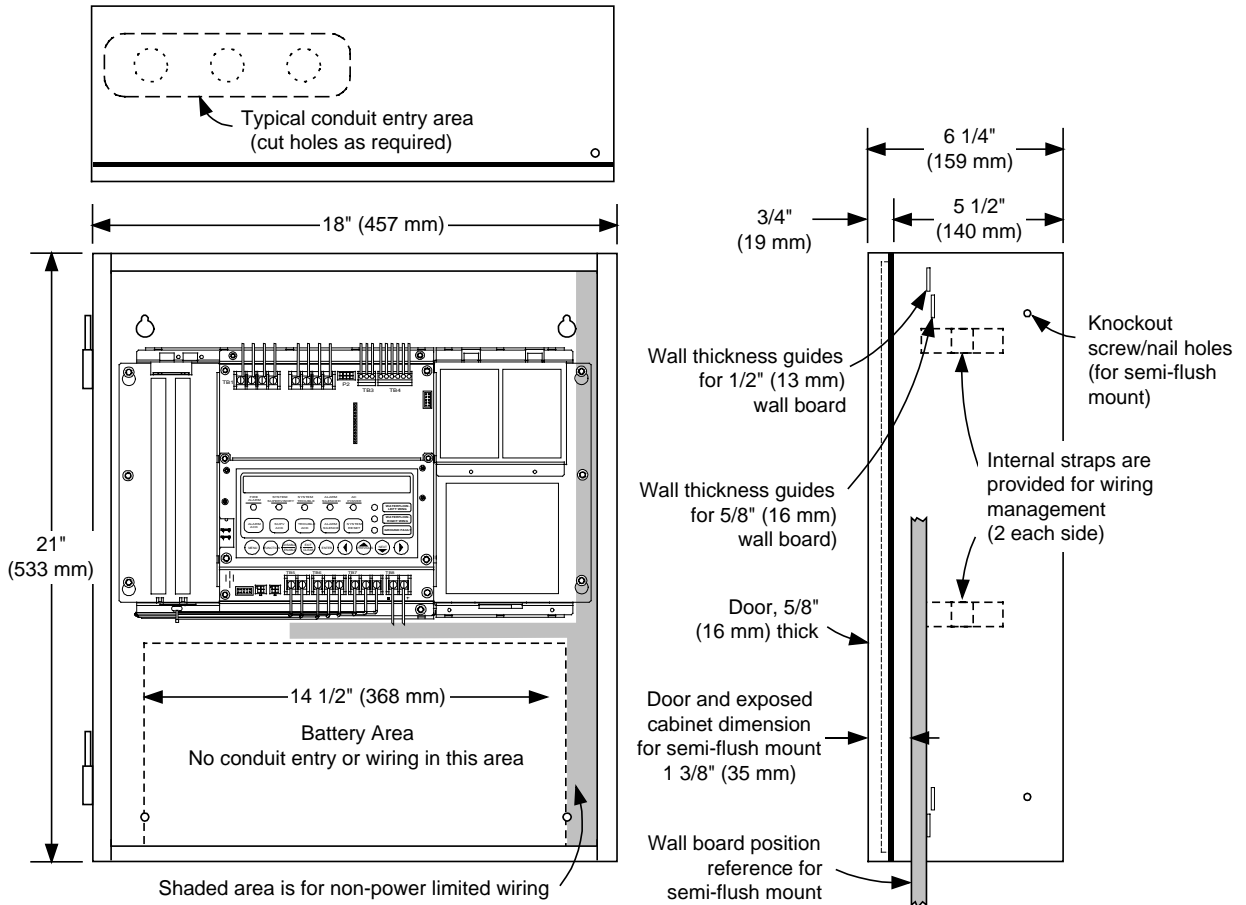
Category	Model	Description	
Optional Features	4010-9826	120 VAC Auxiliary Relay Kit, allows one auxiliary relay to control up to 1/2 A @120 VAC, select as required, 2 maximum	
	2975-9801	Semi-flush trim, beige, 1 7/16" (37 mm) wide	
	2975-9802	Semi-flush trim, red, 1 7/16" (37 mm) wide	
Batteries (required if batteries are internal, select one size)	2081-9272	6.2 Ah Battery, 12 VDC, 2 required	
	2081-9274	10 Ah Battery, 12 VDC, 2 required	
	2081-9288	12.7 Ah Battery, 12 VDC, 2 required	
	2081-9275	18 Ah Battery, 12 VDC, 2 required , Note: use will not allow bottom entry conduit	
	2081-9287	25 Ah Battery, 12 VDC, 2 required	
Cabinets (select one if pre-shipped)	2975-9215	Red Cabinet	Dimensions: 22" H x 18" W x 5 3/8" D (559 mm x 457 mm x 137 mm)
	2975-9214	Beige Cabinet	
Doors (select one if pre-shipped)	4010-9858	Red Door	Dimensions: 22" H x 18" W x 7/8" D (559 mm x 457 mm x 22 mm)
	4010-9857	Beige Door	

* ULC listed models are designated by a "C" or "CF" suffix such as 4010-9010C or 4010-9101CF. "CF" indicates French labels. Contact your local Simplex representative for details.

4010 Module Layout Reference



Mounting Information



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