Simplex

LifeAlarm Fire Alarm Control Panels

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

4006 Series Fire Alarm Control Panels
Providing up to Ten IDCs and Four NACs

Features

Control panel operator convenience features:

- Wide viewing angle 2 x 20 (40 character) alphanumeric LCD and dedicated LEDs provide convenient panel status information
- Operation is programmable using a multi-function keypad and the panel LCD or via service computer (PC)
- RS-232 service port provides upload/download PC access for panel configuration and event history logs
- Software updates are via PC download
- Convenient library of standard custom label terms
- Standard on-board DACT provides: Contact ID, 3/1, 4/2, BFSK, and SIA formats
- WALKTEST silent or audible system test
- Voltage and current for both the battery charger and the battery can be displayed at the front panel LCD

Five Standard Initiating Device Circuits (IDCs):

- Five Class B IDCs with optional expansion to ten, all with individual zone disable
- Monitor 2-wire or 4-wire initiating devices including TrueAlarm smoke detectors
- Optional Class A Adapter Module

Two Standard Notification Appliance Circuits (NACs):

- Class A or Class B outputs with solid state overcurrent protection per NAC, each rated for 2 A
- Selectable for Simplex® SmartSync two-wire horn/strobe control or synchronized strobe control

Standard Power Supply:

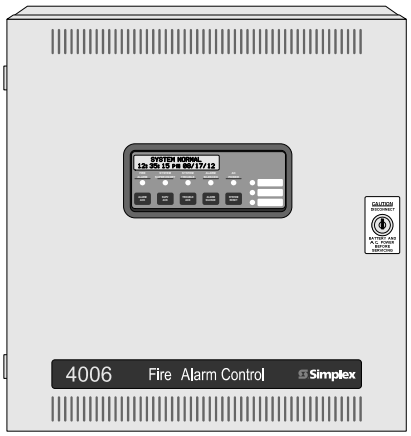
- Provides 3 A maximum @ nominal 24 DC
- Automatic input power selection operates with 120 VAC or 240 VAC, 50 or 60 Hz
- On-board temperature compensated battery charger for up to 12.7 Ah batteries in cabinet (UL and ULC) and up to 25 Ah batteries in separate cabinet (UL only)

Additional standard features:

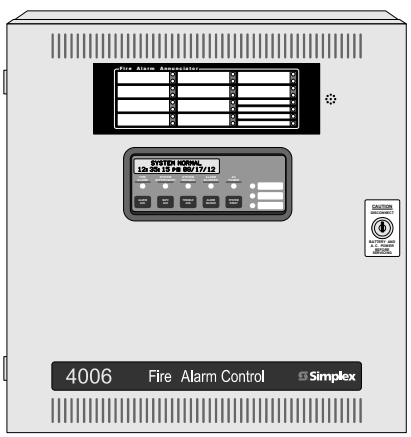
- Programmable Active Status Reminder
- Two auxiliary relays
- IDCs, NACs, and Relay outputs are power limited (AC input, battery circuits, and City Circuit Module outputs are non-power limited)
- Available with beige or red cabinet
- UL listed to Standard 864

Available option modules:

- Door mounted 24 LED annunciator (standard on ULC models)
- 3 A Expansion Power Supply with two on-board 2 A NACs that operate the same as standard NACs



4006-9102 (Beige) Standard Control Panel



4006-9122 (Beige) Control Panel with 24 LED Annunciator

Available option modules *(Continued)*:

- Expansion IDC module with five Class B IDCs
- Class A IDC Adapter Module, City Interface Module, and Auxiliary Relay Module
- Remote LCD and LED/Switch Annunciators

Description

For areas requiring from five to ten initiating zones, the Simplex 4006 Series fire alarm control panels provide flexible initiating circuit monitoring, extensive programmable control capability, and LCD annunciated circuit-specific 20 character custom labels.

* See page 2 for additional ULC and MEA information. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:318 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. 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.

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Standard Feature Details

Five Class B IDCs are each capable of supporting up to 30 Simplex current-limited smoke detectors or electronic heat detectors (see list on page 4) as well as manual stations and other compatible contact closure initiating devices. IDCs are capable of Class A operation with an optional adapter module and can be programmed as Style C (short or open initiates a trouble) for use with current limited devices only.

Two, 2 A On-Board NACs provide conventional reverse polarity operation, selectable as Class A or Class B, with electronic control and overcurrent protection. Operation is selectable for synchronized strobe or SmartSync horn/strobe two-wire operation. Horn control can be selected at the panel for: Temporal pattern coding, Steady On, Slow March Time of 20 beats per minute (BPM), or Fast March Time of 120 BPM. **Note:** When selected for SmartSync horn/strobe control, March Time produces 60 BPM.

The 24 VDC Auxiliary output provides up to 500 mA for system use. (Auxiliary output current is counted for total power supply capacity.)

Standard Auxiliary Relay Outputs. Two relay outputs are available, selectable as normally open or normally closed, rated 2 A @ 30 VDC per below:

Aux Relay 1 is normally assigned to General Alarm operation but is programmable (see page 7)

Aux Relay 2 (Trouble) is energized when Normal and is de-energized with a Trouble condition.

On-Board Dual Line DACT. Operation can be selected for Contact ID, SIA, 3/1, 4/2, and BFSK formats. Reporting includes Alarm, Supervisory, Trouble, and AC Failure. Operation includes automatic 6 hour test and programmable power fail report delay.

Standard Feature Details *(Continued)*

Power Supply and Battery Charger. DC power output is 3 A @ 24 VDC for panel use. The temperature compensated battery charger (sealed lead-acid batteries only) is rated for up to 25 Ah batteries per UL 864 and up to 12.7 Ah per ULC-S527. (Up to 12.7 Ah batteries fit in the cabinet, larger batteries require an external cabinet.) Panel electronics can measure and display voltage and current for the power supply, batteries and the battery charger (standard and expansion power supply). Depleted battery trouble is monitored and annunciated and depleted battery cutout can be selected. Active battery status monitor supervises charger operation.

Optional Feature Details

Expansion Power Supply. Provides 3 A total @ 24 VDC, two additional 2 A NACs, and an additional auxiliary power output of 500 mA. Output operation is the same as on the standard power supply.

Expansion IDC Module. Provides 5 additional Class B IDCs with operation the same as the standard IDCs.

Expansion Relay Module. Provides 10 programmable relays, jumper selectable as N.O. or N.C. Contacts are rated 2 A @ 30 VDC. Typical application is to track status of each IDC. See page 7 for relay program options.

Class A Adapter Module. Converts 5 IDCs from Class B to Class A operation. Two modules can be mounted for use with the Expansion IDC Module.

City Circuit Modules. These modules are available with or without on-board disconnect switches, depending on local requirements (either type can be disconnected through the front panel under password control). Connections are for Remote Station (reverse polarity) or Municipal Master (local energy). Reporting includes Alarm, Supervisory, and Trouble.

Product Selection

Control Panel

Model	Color	Description	Listings		Standard Feature Summary
4006-9102	Beige	Standard fire alarm control panel	MEA	UL, FM, & CSFM	5 Class B IDCs, 2 Class B/Class A NACs, 3 A power supply with battery charger; on-board DACT; 120/240 VAC, 50/60 Hz (autoselect)
4006-9101	Red				
4006-9122	Beige	Fire alarm control panel with 24 LED Annunciator on front door	ULC		
4006-9121	Red				

Option Modules

Model	Description	
4006-9801	Expansion Power Supply; 3 A, with 2 NACs, 120/240 VAC, 50/60 Hz	Select up to one of each as required
4006-9802	Expansion IDC Module; 5 Class B IDCs	
4006-9803	Expansion Relay Module; 10 relays selectable as either N.O. or N. C.	
4006-9804	Class A Adapter Module; converts 5 IDCs from Class B to Class A	Select up to two maximum
4006-9805	City Circuit Module with disconnect switch	Select one if required
4006-9806	City Circuit Module without disconnect switch	

Accessories

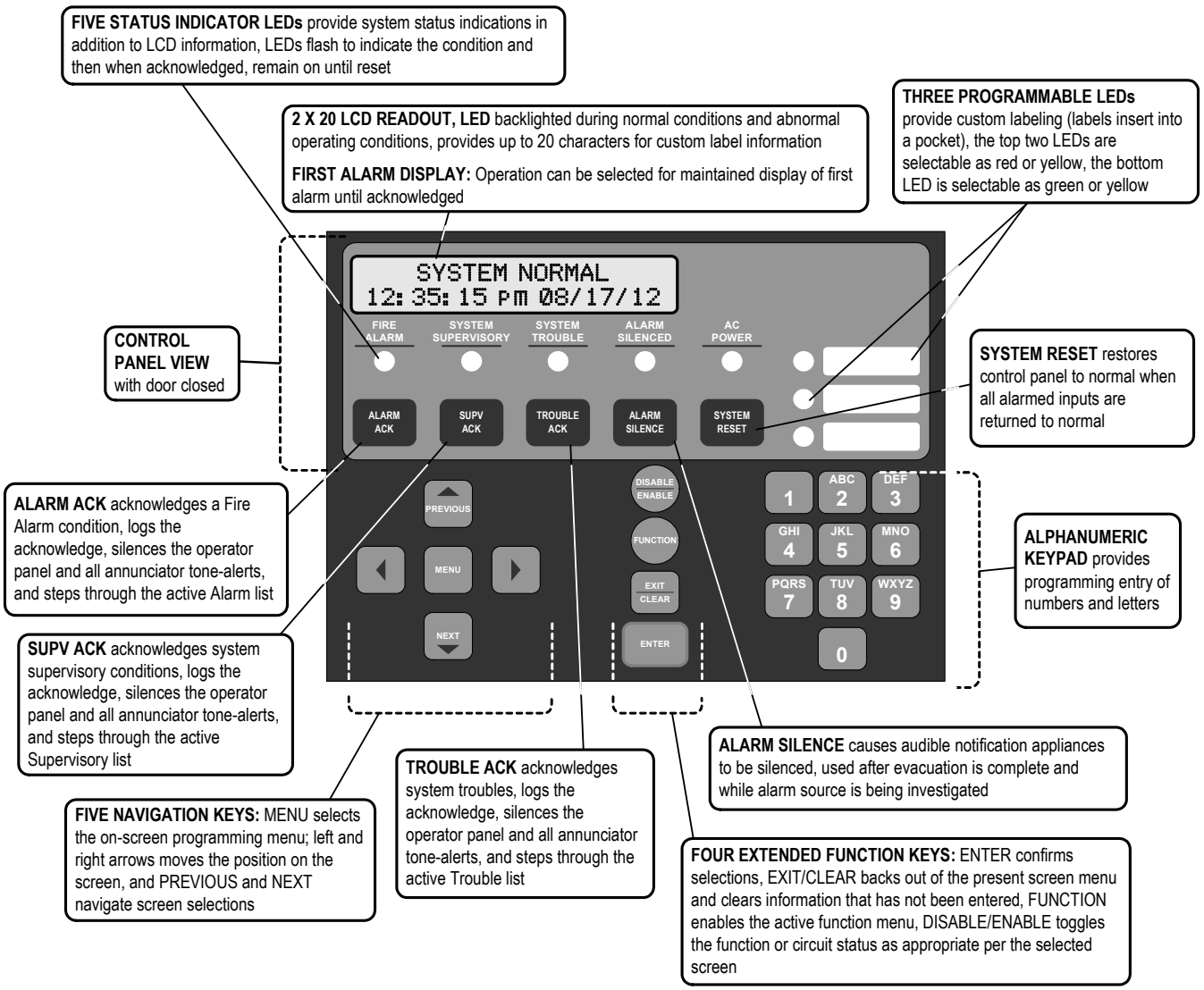
Model	Description
2975-9811	Beige semi-flush trim kit; 1-7/16” (37 mm) wide; includes four corners and trim pieces for top, bottom, and sides
2975-9812	Red semi-flush trim kit; 1-7/16” (37 mm) wide; includes four corners and trim pieces for top, bottom, and sides
4009-9801	Beige External Battery Cabinet for up to 25 Ah batteries; mounts close-nippled to control panel cabinet; dimensions = 16-1/4” W x 13-1/2” H x 5-3/4” D (413 mm x 343 mm x 146 mm) [depth increased for 25 Ah effective 7/2005]

Batteries, 12 Volt (select one battery model per system standby requirements; order quantity of two)

Model	Size	Model	Size	Location	Model	Size	Location
2081-9272	6.2 Ah	2081-9288	12.7 Ah	For cabinet mount	2081-9275	18 Ah	Requires 4009-9801 External Battery Cabinet (UL listed only)
2081-9274	10 Ah				2081-9827	25 Ah	

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Keyboard Reference



FIVE STATUS INDICATOR LEDs provide system status indications in addition to LCD information, LEDs flash to indicate the condition and then when acknowledged, remain on until reset

2 X 20 LCD READOUT, LED backlighted during normal conditions and abnormal operating conditions, provides up to 20 characters for custom label information

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

THREE PROGRAMMABLE LEDs provide custom labeling (labels insert into a pocket), the top two LEDs are selectable as red or yellow, the bottom LED is selectable as green or yellow

CONTROL PANEL VIEW with door closed

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

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

ALPHANUMERIC KEYPAD provides programming entry of numbers and letters

SUPV ACK acknowledges system supervisory conditions, logs the acknowledge, silences the operator panel and all annunciator tone-alerts, and steps through the active Supervisory list

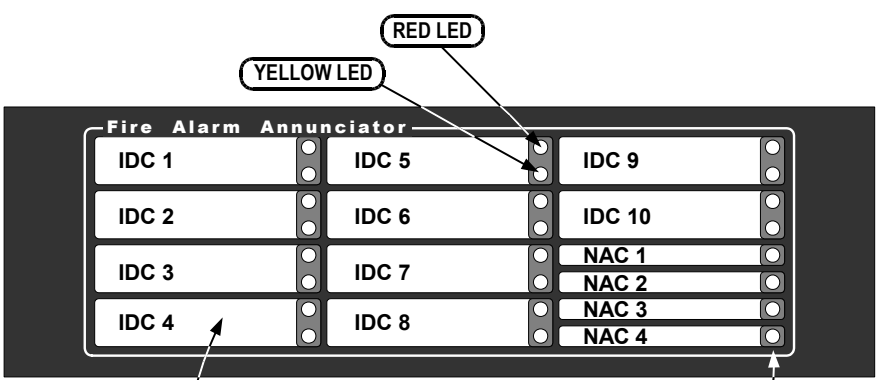
FIVE NAVIGATION KEYS: MENU selects the on-screen programming menu; left and right arrows moves the position on the screen, and PREVIOUS and NEXT navigate screen selections

TROUBLE ACK acknowledges system troubles, logs the acknowledge, silences the operator panel and all annunciator tone-alerts, and steps through the active Trouble list

ALARM SILENCE causes audible notification appliances to be silenced, used after evacuation is complete and while alarm source is being investigated

FOUR EXTENDED FUNCTION KEYS: ENTER confirms selections, EXIT/CLEAR backs out of the present screen menu and clears information that has not been entered, FUNCTION enables the active function menu, DISABLE/ENABLE toggles the function or circuit status as appropriate per the selected screen

Door LED Annunciator Details



14 CUSTOM LABEL AREAS are available, typically for IDC and NAC annunciation (shown labeled for reference, blank labels are provided); dual LED locations have a Red LED (top) and a Yellow LED (bottom); labels insert into pockets behind the overlay; LED operation is programmable to track other monitored status conditions

FOUR YELLOW LEDs provide default NAC Trouble annunciation (shown labeled as NAC 1-4)

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Specifications (Refer to Installation Instructions 579-704 for additional information)

Power Ratings		
AC Input Ratings	Input Voltage	120 VAC, 60 Hz; 220/230/240 VAC, 50/60 Hz, auto-select
	Input Current, Standard	2 A maximum @ 120 VAC input; 1.5 A maximum @ 240 VAC input
	Input Current with Expansion Power Supply	4 A maximum @ 120 VAC input; 3 A maximum @ 240 VAC input
Power Supply Output Rating		3 A maximum @ 24 VDC in alarm (see NAC details on page 6)
Battery Charger		Temperature compensated charger is rated for up to 25 Ah per UL 864; up to 12.7 Ah per ULC-S527
Standby Current		130 mA; with 5 IDCs fully loaded, tone-alert silenced, trouble LED on
Standard Circuit Ratings (NOTE: Total DC current = 3 A maximum)		
Notification Appliance Circuits (NACs) **NOTE:** See details on page 6		2 A maximum @ 24 VDC, per circuit; available as Class A or Class B; Class B end-of-line resistor = 10 kΩ, 1/2 W; Model 4081-9008 (P/N 733-894)
Initiating Device Circuits (IDCs)	Supervisory Current	3 mA maximum
	Alarm Current	60 mA maximum
	Capacity	Each IDC supports up to 30 detectors (smoke or electronic heat) and manual stations as required; wiring distance is limited to 50 Ω maximum
	End-of-Line Resistor	3.3 kΩ, 1/2 W; Model 4081-9002 (P/N 733-893) for Class B IDCs
Annunciator Communications	Quantity Supported	Up to four annunciator modules per panel (see page 5 for details)
	Wiring Type	Twisted pair, or twisted, shielded pair; 18 AWG (0.82 mm^2)
	Bus-Style Wiring	Up to 4000 ft (1219 m); 0.58 µF (580 nF) maximum capacitance; 35 Ω max.
	"T-Tap" Wiring	Up to 10,000 ft (3048 m) total wiring; up to 2500 ft (762 m) to farthest device
	Line Matching Resistor	Bus-style, connect one at panel and one at end of line; T-Tap, connect one at panel and one at farthest device: 100 Ω, 1/2 W; 4081-9011; (part number 733-974)
	Suppression	Use 2081-9044 Overvoltage Protectors where wiring leaves and enters a building (refer to data sheet S2081-0016)
Auxiliary Power Output		500 mA maximum @ 24 VDC
Standard Auxiliary Relay Outputs	Relay 1	Programmable operation; Contacts rated 2 A @ 30 VDC, 0.35 power factor; jumper selectable as N.O. or N.C.
	Relay 2	Trouble operation
Wiring Connections for Above Circuits and AC Input		Terminals rated for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Option Module Ratings		
Class A IDC Adapter Module		Five circuits per module, rated same as circuits
Ten Relay Auxiliary Module 4006-9803	Contact Ratings	2 A @ 30 VDC, 0.35 power factor; jumper selectable as N.O. or N.C.
	Wiring	Terminals rated for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Environmental Ratings		
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

Reference Information, Compatible Simplex Peripherals

Compatible Simplex Detectors

Model	Type	Description		Data Sheet
4098-9601	Photoelectric smoke detectors for 2-wire and 4-wire bases	Standard detector (2.8% nominal)		S4098-0015
4098-9605		Reduced sensitivity detector (3.5% nominal)		
4098-9602		Combination smoke and heat detector		S4098-0017
4098 Series	Duct detector housings	2-wire and 4-wire models		S4098-0029
4098 Series	Ionization Smoke Detectors	2-wire and 4-wire models		S4098-0018
4098-9612	Electronic heat detectors for 2-wire and 4-wire bases	135° F (57°C)	Fixed temperature heat detector	S4098-0014
4098-9614		200° F (93°C)		
4098-9613		135° F (57°C)	Fixed temperature heat detector with rate-of-rise detection	
4098-9615		200° F (93°C)		

Compatible System Expansion Panels

Model	Type	Description	Data Sheet
4003 Series	Voice Control Panel	Provides a remote voice control panel with on-board NACs, internal microphone, and remote microphone input	S4003-0002
4009 Series	Remote NAC Extender	Provides remote NACs; includes power supply and battery charger; 4 extenders max/NAC; **4006 uses NAC output to provide control**	S4009-0002

Note: Contact your local Simplex Product Supplier for additional compatible peripherals.

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Supervisory and Alarm Currents

Model	Module	Supervisory	Alarm
4006-9101 4006-9102	Standard fire alarm control panel	130 mA	160 mA + 60 mA per IDC in Alarm
4006-9121 4006-9122	Control panel with 24 LED Annunciator	148 mA	210 mA + 60 mA per IDC in Alarm
4006-9801	Expansion Power Supply	50 mA	60 mA
4006-9802	Expansion IDC Module	50 mA	50 mA + 60 mA per IDC in Alarm
4006-9803	Expansion Relay Module	0 mA + 10 mA per energized relay	0 mA + 10 mA per energized relay
4006-9804	Five Circuit IDC Class A Adapter	0 mA normal; 10 mA per IDC in trouble	0 mA normal; 10 mA per IDC in trouble
4006-9805	City Circuit Module with disconnect switch	30 mA	60 mA
4006-9806	City Circuit Module without disconnect switch	30 mA	60 mA
4606-9101	Remote LCD Annunciator (see data sheet S4606-0001)	65 mA	140 mA
4610-9111	Remote LED/Switch Annunciator (see data sheet S4610-0001)	40 mA	70 mA (all LEDs and tone-alert on)

**** Current Calculation Information:**

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

Remote Annunciator Options

The 4006 supports up to four annunciator options including:

- Door Mounted 24 LED Annunciator
- 4610-9111 Remote LED/Switch Annunciators
- 4606-9101 Remote LCD Annunciators

Annunciators communicate at a rate of 9600 baud with 24 VDC power supplied by separate wiring.

4610-9111 LED Annunciator Features:

- 16 LEDs with programmable functions and dedicated LEDs for Alarm Silenced, Lost Communications, Trouble, and Power-on
- Keyswitch access controlled switches for Acknowledge, Alarm Silence, Reset, and Lamp Test
- Local tone-alert

4606-9101 LCD Annunciator Features:

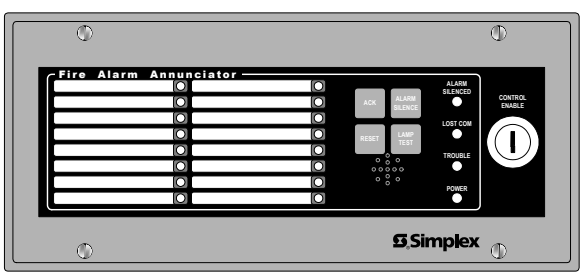
- LCD readout with two lines of 40 characters each and LED backlighting
- Wide viewing angle, super-twist design
- Keyswitch access controlled

Control switches and status LEDs for:

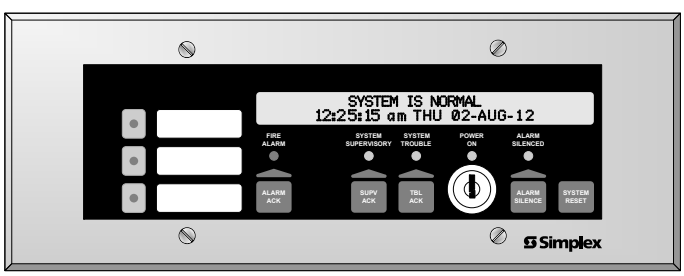
- Alarm, supervisory, or trouble acknowledge
- Alarm silence and System Reset

Three programmable LED indicators:

- Two LEDs are selectable as red or yellow
- One LED is selectable as green or yellow
- With provisions for custom labeling



4610-9111 LED/Switch Annunciator



4606-9101 LCD Annunciator

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IDC Operation Modes

The following IDC operation modes are selectable from either the front panel or the PC programmer

Function Type	Description	Device State	IDC Status
FIRE	Fire monitor zone	Normal = Current Limited = Short = Open =	NORMAL FIRE FIRE TROUBLE
WATER	Waterflow monitor zone	Normal = Current Limited = Short = Open =	NORMAL FIRE FIRE TROUBLE
HEAT	Heat detector zone		
DUCT	Duct detector zone		
PULL	Manual (pull) station zone		
SMOKE	Smoke detector zone		
SO	Sprinkler Supervisory	Normal = Current Limited = Short = Open =	NORMAL SUPERVISORY SUPERVISORY TROUBLE
WSO	Combination waterflow and water supervisory zone	Normal = Current Limited = Short = Open =	NORMAL SUPERVISORY ALARM TROUBLE
SUPV	Supervisory monitor	Normal = Current Limited = Short = Open =	NORMAL SUPERVISORY SUPERVISORY TROUBLE
UTIL	Supervised utility monitor	Normal = Current Limited = Short = Open =	OFF ON ON TROUBLE
TROUBLE	Trouble monitor	Normal = Current Limited = Short = Open =	NORMAL TROUBLE TROUBLE TROUBLE
VSMOKE	Verified fire alarm; the abnormal (current limited) state causes the alarm verification cycle to start; a short is an immediate alarm	Normal = Current Limited = Short = Open =	NORMAL VERIFY FIRE TROUBLE
STYLEC	Style C fire monitor	Normal = Current Limited = Short = Open =	NORMAL FIRE TROUBLE TROUBLE
LATSUPV	Latching supervisory monitor (supervisory latches until system is reset)	Normal = Current Limited = Short = Open =	NORMAL SUPERVISORY SUPERVISORY TROUBLE

Detailed NAC Ratings

NAC Ratings, Maximum per NAC	Appliances
Special Application: 2 A; strobe synchronization is UL listed across all 4 system NACs for these 4906 Series appliances	Simplex 4901 Series (horns) and 4906 Series Multi-Candela non-addressable strobes, horn/strobes, and speaker/strobes (contact your Simplex product representative for compatible appliances)
Regulated 24 VDC: 1.5 A **NOTE:** Maximum strobe load on main power supply or expansion power supply is **1.35 A** per power supply (2.7 A total); remainder of power supply rating is available for other loading	Power for other UL listed appliances; use associated external synchronization modules where required

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NAC Operation Modes

Function Type	Description
SSIG	Alarm signal, on until silenced
RSIG	Alarm signal, on until reset
TROUBLE	Trouble signal
SUPV	Supervisory signal
QALERT	SmartSync 2-wire horn/strobe control; horn on until silenced, strobe on until reset
WHEELOCK	Provides Wheelock strobe synch protocol when using only Wheelock strobes on panel, not to be mixed with Simplex strobes
UTILITY	Utility signal, generic non-alarm

Relay Operation Modes

The following relay operations are selectable from either the front panel or the PC programmer.

Common Fire Alarm Operations

Function Type	Relay Activates Upon	Relay Deactivates Upon
SRELAY	General Alarm	Silence
RRELAY	General Alarm	Reset
SUPV	Supervisory condition	Clear
TRBL	Trouble condition	Clear

Special Functions

Function Type	Description
UTILITY	Utility IDC in the same alarm group activates
PRIMARY	General alarm; relay is tied to Primary Elevator Recall contacts
ALTERN	General alarm; relay is tied to Alternate Elevator Recall contacts
DRESET	Relay provides 24 VDC power to 4-wire detectors; relay turns off for 5 seconds on System Reset
DHOLDER	Relay provides 24 VDC to larger door holder relay with separate power source; relay activates on general alarm to remove power to door holder relay and close doors

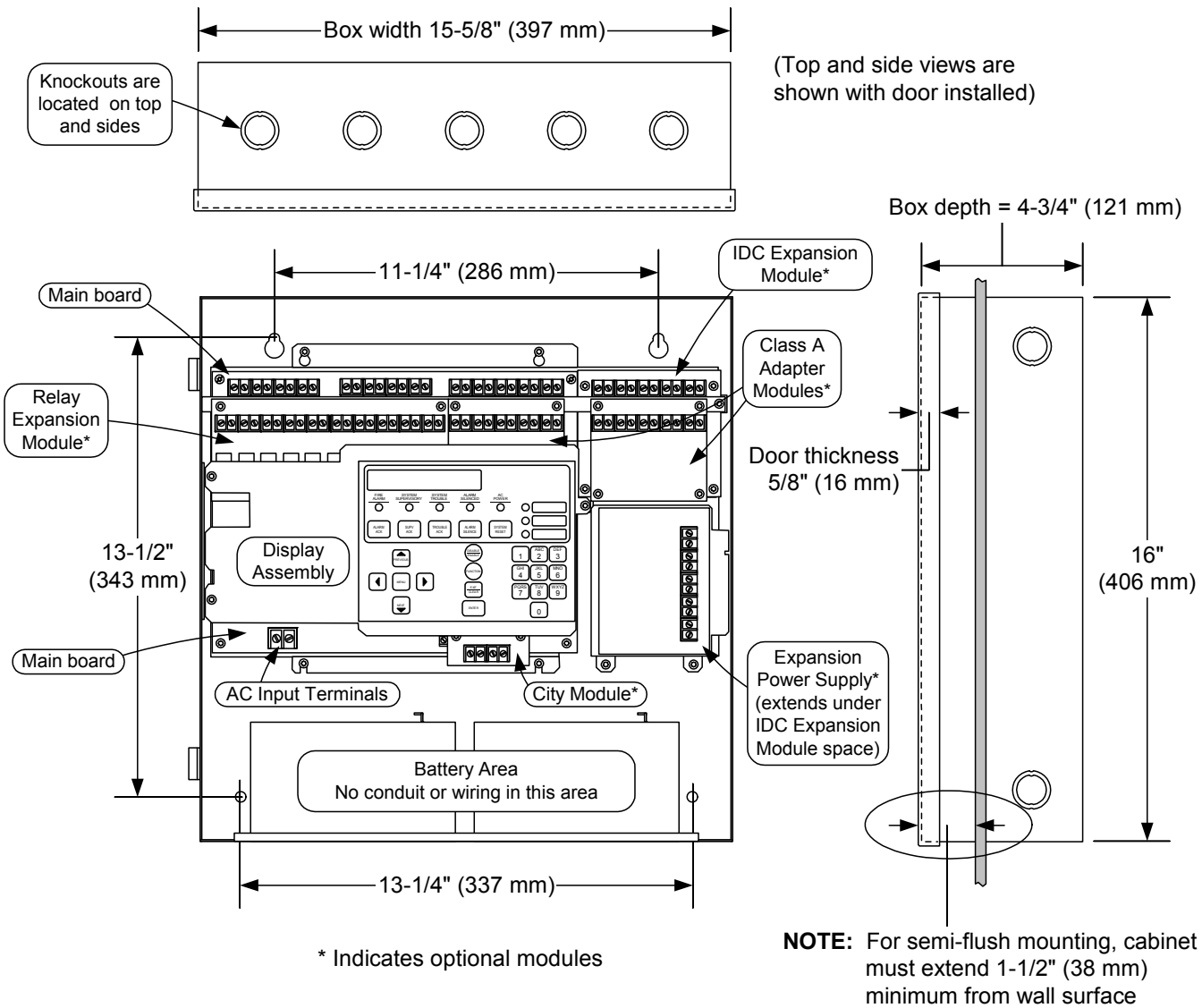
Additional Programming Feature Details

Function	Details
Custom labels	Up to 20 characters per point; a built-in message library provides for commonly used words for easy front panel programming
Message Library	For front panel label creation convenience, the following words can be selected as part of a custom label (_designates a built-in space; typing the first letter of a word/number will select the closest word in alphabetical/numerical sequence)
History logs	Three separate logs: Alarm (100 entries), Supervisory (100 entries), and Trouble (300 entries); logs can be queried separately, or as a combined log; logs can be downloaded for printing or archiving using the RS-232 service port
Autoprogram	Automatically scans system for installed option modules and configures panel programming accordingly; modes are available to detect new modules only, recreate default programming and then add all modules found
Alarm Groups	Up to 99 alarm groups are available, any point may be in up to 3 alarm groups; this allows NAC and relay operation to be associated with IDC inputs according to local response requirements
WALKTEST	Allows one person to perform system testing; alarm or trouble tests are followed by automatic reset; the alarm zone is sounded out by associated audible notification or the response is silently logged into the Alarm log
Manual Control	Allows selection of individual relays or NACs for system testing
Passcode Protection (4-digit number)	Level 1 = Acknowledge, Silence, System Reset, View logs, View point information, and Lamp Test Level 2 = All Level 1 + Set Time/Date, Point Control, Enable/Disable points Level 3 = All Level 2 + Clear logs, Clear verification tallies, Custom label editing, and WALKTEST Level 4 = All Level 3 + Programming, Upload/Download; this is the Service access level

North South East West Front	Center rear 5th Flr_1 Flr_2	Flr_3 Flr_4 Flr_5 RM_	Basement Floor Garage Hallway HVAC_Room Kitchen	Lobby Office Patient upper lower	main first 2nd 3rd 4th	Boiler_RM Classroom Closet_ Corridor Elect_RM	Elevator Entrance Restroom Room Stairway	Storeroom Wing Zone

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Installation and Module Placement Reference



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