

Description

The Simplex 2008 fire alarm control unit (FACU) provides flexible initiating circuit monitoring and extensive programmable control capability for areas requiring one to eight initiating zones.

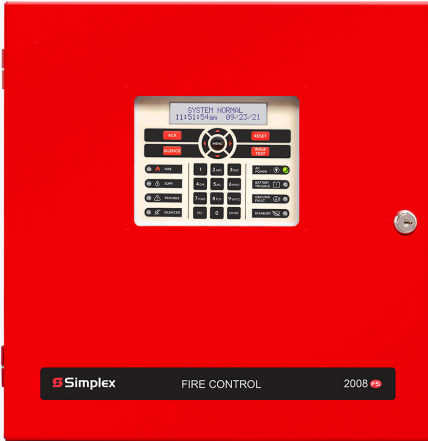


Figure 1: 2008 FACU

Features

Convenient FACU operation

- 2 x 20 character LCD and dedicated LEDs for convenient FACU status information
- Program operation using a multi-function keypad and the panel LCD or through service computer (PC)
- USB port provides upload and download PC access for panel configuration and event history logs
- Download software updates with PC
- Convenient library of standard custom label terms
- Standard onboard DACT provides Contact ID format
- WALKTEST silent or audible system test
- Alarm, supervisory, trouble and user logs stored in non-volatile memory preserves time and date information

Eight standard initiating device circuits (IDCs)

- Eight Class B IDCs or four Class A IDCs, all with individual zone disable
- Monitor two-wire initiating devices including TrueAlarm smoke detectors

Two standard notification appliance circuits (NACs)

- Class A or Class B outputs with solid state overcurrent protection for each NAC, each rated for 1.5 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 either 120 VAC, 60 Hz, 4 A or 240 VAC, 50 Hz, 3 A
- On-board temperature compensated battery charger for up to 7 Ah batteries in cabinet and up to 25 Ah batteries in separate cabinet

Additional standard features

- Programmable active status reminder
- Four 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 red cabinet
- UL listed to Standard 864

Available optional modules

- City circuit module
- Remote LCD annunciators

Standard feature details

Eight Class B IDCs or four Class A IDCs

Each IDC can support up to 30 Simplex current-limited smoke detectors or electronic heat detectors. Manual stations and other compatible contact closure initiating devices are also supported.

Two 1.5 A onboard NACs

Two 1.5 A NACs provide conventional reverse polarity operation, selectable as Class A or Class B, with electronic control and overcurrent protection. You can select either synchronized strobe or SmartSync horn/strobe two-wire operation. You can select Horn control at the FACU for the following: temporal pattern coding, steady on, slow march time of 20 beats a 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

The following two auxiliary output circuits are available:

- Auxiliary 1: non-resettable aux power
- Auxiliary 2: resettable aux power

Total 500mA for both auxiliary circuits

Standard auxiliary relay outputs

The following four relay outputs are available, selectable as normally open or normally closed, rated 2 A @ 30 VDC:

- Aux relay 1 is the default common trouble relay and is normally energized
- Aux relay 2 is common alarm, the default setting is **On Until Reset**
- Aux relay 3 is common supervisory
- Aux relay 4 is common trouble

Onboard dual line DACT

The communication format is Contact ID (CID). Reporting includes alarm, supervisory, trouble, and AC failure. Operation includes programmable test report time and power fail report delay.

Power supply and battery charger

DC power output is 3 A @ 24 VDC for FACU use. The temperature compensated battery charger is rated for up to 25 Ah batteries and up to 7 Ah batteries fit in the cabinet. Only use sealed lead-acid batteries. Larger batteries require an external cabinet. Depleted battery trouble is monitored and annunciated and depleted battery cutout can be selected. Active battery status monitor supervises charger operation.

Optional feature details

City Circuit module

This module is available with onboard disconnect switches. You can disable the module from the FACU through the DIP switch setting. Connections are for remote station (reverse polarity) or municipal master (local energy). Reporting includes alarm, supervisory, and trouble.

Product selection

Table 1: FACU

Model	Color	Description	Listings	Standard feature summary
2008-9101	Red	Standard FACU	UL	Eight Class B IDCs or four Class A IDCs, two Class B or Class A NACs, 3 A power supply with battery charger, on-board DACT, 120/240 VAC, 50/60 Hz (autoselect)

Table 2: Optional modules

Model	Description
2004-9909	City circuit module with disconnect switch

Table 3: Accessories

Model	Description
4009-9801	Beige external battery cabinet for up to 25 Ah batteries. Mount close-nipped to FACU. Dimensions: 16 1/4 in. x 13 1/2 in. x 5 3/4 in. (413 mm x 343 mm x 146 mm) (H x W x D)
2606-9101	LCD Annunciator

Table 4: Batteries, 12 volt (see note)

Model	Size	Requirements
2081-9274	10 Ah	Requires 4009-9801 external battery cabinet
2081-9286	7 Ah	
2081-9288	12.7 Ah	
2081-9275	18 Ah	
2081-9827	25 Ah	

Note: Select one battery model in accordance with system standby requirements. Order quantity of two.

Specifications

Refer to *A008 Foundation Series Fire Alarm Installation Guide: 579-1400* and *A008 and Programming Instructions: 579-1409* for additional information.

Table 5: Power ratings

Specification	Rating
AC input ratings	Input voltage
	120 VAC, 60 Hz; 240 VAC, 50 Hz, auto-select
Power supply output rating	Input current, standard
	4 A maximum @ 120 VAC input; 3 A maximum @ 240 VAC input
Battery charger	3 A maximum @ 24 VDC in alarm (see NAC details on Detailed NAC ratings)
Standby current	Temperature compensated charger is rated for up to 25 Ah
	226 mA; with 4 class A IDCs fully loaded, tone-alert silenced, trouble LED on

Table 6: Standard circuit ratings, see note 1

Specification	Rating
NAC See Detailed NAC ratings .	1.5 A maximum @ 24 VDC, for each circuit; available as class A or class B. Class B end-of-line resistor = 10 k Ω , 1/2 W, model 4081-9008, P/N 733-894) See note 2 .
IDC See note 3 .	Supervisory current
	9 mA maximum
	Alarm current
	60 mA maximum
Annunciator communications	Capacity
	Each IDC supports up to 30 detectors, smoke or electronic heat, and manual stations as required. Wiring distance is a maximum of 50 Ω maximum
	End-of-line resistor
	3.3 k Ω , 1/2 W. Model 4081-9002, P/N 733-893, for Class B IDCs
	Quantity supported
	Up to four annunciators
Auxiliary power output	Wiring type
	Twisted pair 18 AWG (0.82 mm ²)
	Bus-style wiring
	Up to 4000 ft (1219 m); 0.58 μ F (580 nF) maximum capacitance, 35 Ω max.
Standard auxiliary relay outputs	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
Wiring connections for IDC, NAC and aux circuits	Suppression
	Use 2081-9044 overvoltage protectors where wiring leaves and enters a building, refer to data sheet
Wiring connections for annunciator	Aux 1
	500 mA maximum @ 24 VDC
Wiring connections for AC input	Aux 2
	Total 500 mA for both circuits.
Relay 1	Trouble operation
	Contacts rated 2 A @ 30 VDC (resistive) at 0.5 A at 30 VAC (resistive). Each relay is selectable as N.O. or N.C.
Relay 2, 3, and 4	Programmable operation
Terminals rated for 18 AWG to 12 AWG (0.82 mm ² to 3.31 mm ²)	
Terminals rated for 22 AWG to 14 AWG (0.5 mm ² to 2.5 mm ²)	
Terminals rated for 14 AWG to 12 AWG (2.5 mm ² to 4 mm ²)	

Note:

1. Total DC current = 3 A maximum.
2. The NAC Class B circuit can additionally support 3.9K, 4.7K, 5.1K, 5.6K and 15K values for end-of-line (EOL) resistors to accommodate retrofit applications.
3. The IDC Class B circuit can additionally support 4.7K EOL in case of retrofit applications.

Table 7: Environmental ratings

Specification	Rating
Operating temperature range	32°F to 120°F (0°C to 49°C)
Operating humidity range	Up to 93% RH, non-condensing @ 90°F (32°C) maximum

Reference information, compatible Simplex peripherals

Table 8: Compatible detectors

Model	Description
4098-5601	Photoelectric Smoke Detector
4098-5602	Photo and Heat Detector
4098-5610	Heat rate of rise and fixed, 135°F
4098-5611	Heat fixed, 135°F
4098-5612	Heat fixed, 200°F
4098-5685	Two-Wire Duct Detector with Housing and Relay
4098-5686	Four-Wire Duct Detector with Housing and Relay
4098-9688	Two-Wire Duct Detector with Housing and Relay

Table 9: New intelligent conventional detectors

PID	Device description	Compatible bases				
		4 in. standard	5 in. standard, existing	6 in. adaptor for 5 in. base	5 in. 2-wire relay base	5 in. 4-wire relay base
4098-5601	Photoelectric Smoke Detector	4098-5261	4098-5207	4098-9799	4098-5680	4098-5682
4098-5602	Photo and Heat Detector	4098-5261	4098-5207	4098-9799	4098-5680	4098-5682
4098-5610	Heat rate of rise and fixed, 135°F	4098-5261	4098-5207	4098-9799	4098-5680	4098-5682
4098-5611	Heat fixed, 135°F	4098-5261	4098-5207	4098-9799	4098-5680	4098-5682
4098-5612	Heat fixed, 200°F	4098-5261	4098-5207	4098-9799	4098-5680	4098-5682
4098-5613	Heat rate of rise and fixed, 200°F	4098-5261	4098-5207	4098-9799	4098-5680	4098-5682

Table 10: Compatible system expansion panels

Model	Type	Description	Data Sheet
4009 Series	Remote NAC extender	Provides remote NACs. Includes power supply and battery charger. Four extenders maximum for each NAC. 2008 uses NAC output to provide control.	S4009-0002
Note: Contact your local Simplex product supplier for additional compatible peripherals.			

Additional NAC power

For additional NAC power, use the 4009 NAC Extender. Refer to datasheet S4009-0002 for additional information.

Table 11: NAC power accessories

PID	Description
4009-9201	4009 IDNet NAC Extender with 4, Class B NACs and 8 A power supply, 120 VAC input, seismic tested, UL Listed
4009-9301	4009 IDNet NAC Extender with 4, Class B NACs and 8 A power supply, 240 VAC input, UL Listed
4009-9807	NAC Option Card. Adds four conventional Notification Appliance Circuits, one maximum.
4009-9808	Dual Class A adapter, for two NAC outputs, four maximum
2975-9802	Semi-Flush Trim Kit, red trim

Supervisory and alarm currents

Table 12: Supervisory and alarm currents

Model	Module	Supervisory	Alarm
2008-9101	Standard FACU	130 mA	160 mA with an additional 60 mA for each IDC in Alarm
2004-9909	City Circuit module with disconnect switch	30 mA	60 mA
2606-9101	Remote LCD annunciator	40 mA	48 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.
- Consider IDC of class A wiring style.

Remote annunciator options

The 2008 supports 2606-9101 remote LCD annunciators

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



Figure 2: 2606-9101 LCD annunciator

2606-9101 LCD annunciator features:

- LCD display with five dedicated LEDs for general alarm, supervisory, trouble indication, alarm silenced and power on
- Keyswitch access controlled switches for acknowledge, alarm silence, reset, and up and down scroll keys.
- Local tone-alert
- Maximum of four annunciators

Keyboard reference

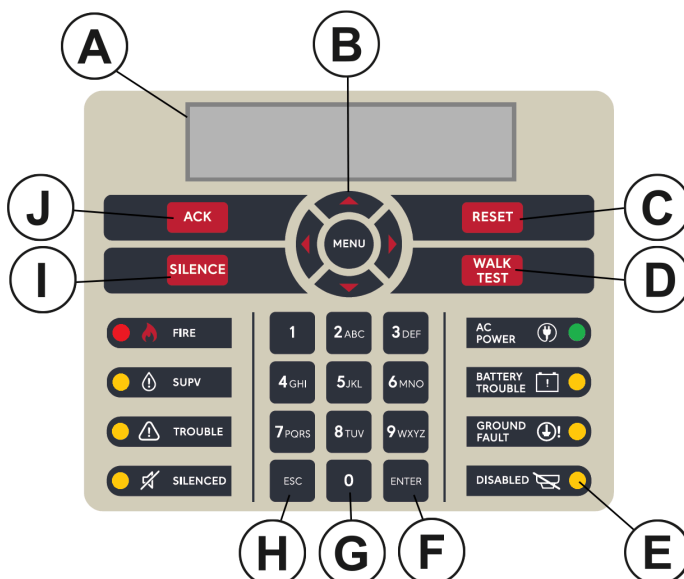


Figure 3: Keyboard reference, FACU view with door closed

Callout	Description	Callout	Description
A	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: you can select operation for maintained display of first alarm until acknowledged.	B	Five navigation keys: MENU and four arrow keys select the on-screen programming menu.
C	RESET restores FACU to normal when all alarmed inputs are returned to normal.	D	WALK TEST activates the walk test feature and turn on the control unit piezo.
E	Eight status indicator LEDs provide system status indications in addition to LCD information. LEDs flash to indicate the condition and then when acknowledged remain on silent.	F	ENTER confirms selections.
G	Alphanumeric keypad provides programming entry of numbers and letters.	H	ESC key to exit a menu or display and return to the top level structure.
I	SILENCE causes audible notification appliances to be silenced, used after evacuation is complete and while alarm source is being investigated.	J	ACK acknowledges all unacknowledged alarm, supervisory and trouble events, logs the acknowledge, silences the operator FACU and all annunciator tone-alerts, and turns flashing LEDs into steady.

IDC operation modes

Select the following IDC operation modes from either the FACU or the PC programmer:

Table 13: IDC operation modes

Function type	Description	Device state	IDC status
Fire	Fire monitor zone	Normal = Normal Abnormal = FIRE Short = FIRE Open = TROUBLE	
Water	Waterflow monitor zone	Normal = Normal Current limited = FIRE Short = FIRE Open = TROUBLE	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 = Normal Current limited = SUPERVISORY Short = SUPERVISORY Open = TROUBLE	
WSO	Combination waterflow and water supervisory zone	Normal = Normal Current limited = SUPERVISORY Short = ALARM Open = TROUBLE	
SUPV	Supervisory monitor	Normal = Normal Abnormal = SUPERVISORY Short = SUPERVISORY Open = TROUBLE	
UTIL	Supervised utility monitor	Normal = OFF Abnormal = ON Short = ON Open = TROUBLE	
TROUBLE	Trouble monitor	Normal = NORMAL Abnormal = TROUBLE Short = TROUBLE Open = TROUBLE	
VSMOKE	Verified fire alarm, the abnormal (current limited) state causes the alarm verification cycle to start, a short is an immediate alarm	Normal = NORMAL Abnormal = VERIFY Short = FIRE Open = TROUBLE	
STYLEC	Style C fire monitor	Normal = NORMAL Abnormal = FIRE Short = TROUBLE Open = TROUBLE	
LATSUPV	Latching supervisory monitor, supervisory latches until system is reset	Normal = NORMAL Abnormal = SUPERVISORY Short = SUPERVISORY Open = TROUBLE	

Detailed NAC ratings

Table 14: Detailed NAC ratings

NAC ratings, maximum for each NAC	Appliances
NAC rating: 1.5 A each NAC circuit maximum	TrueAlert non-addressable horns, strobes, and horn/strobes
Regulated 24 VDC: 1.5 A each NAC circuit maximum	
Note: Total load must be within 3 A including other loads. Refer to battery calculation for NAC loading.	Power for other UL listed appliances. Use associated external synchronization modules where required

NAC operation modes

Table 15: 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
UTILITY	Utility signal, generic non-alarm

Relay operation modes

Select the following relay operations from either the FACU or the PC programmer:

Table 16: Common fire alarm operations

Function type	Condition for relay activation	Condition for relay deactivation
SRELAY	General alarm	Silence
RRELAY	General alarm	Reset
SUPV	Supervisory condition	Clear
TRBL	Trouble condition	Clear

Table 17: 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 s 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

Table 18: Additional programming feature details

Function	Details								
Custom labels	Up to 20 characters for each 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 or number selects the closest word in alphabetical or numerical sequence.								
	North	Center rear	Flr_3	Basement	Lobby	main	Boiler_RM	Elevator	Storeroom Wing Zone
	South	5th	Flr_4	Floor	Office	first	Classroom	Entrance	
	East	Flr_1	Flr_5	Garage	Patient	2nd	Closet_	Restroom	
	West	Flr_2	RM_	Hallway	upper	3rd	Corridor	Room	
	Front			HVAC_Room	lower	4th	Elect_RM	Stairway	
			Kitchen						
History logs	Four separate logs: alarm (100 entries), supervisory (100 entries), trouble (300 entries), and user log (100 entries). Logs can be queried separately, or as a combined log. Logs can be downloaded for printing or archiving using USB 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 three 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								
Passcode protection (four-digit number)	Level 1 = acknowledge, silence, system reset, view logs, view point information, and lamp test								
	Level 2 = all level 1 and set time and date, point control, enable and disable points, clear logs, clear verification tallies, custom label editing, and WALKTEST								
	Level 3 = all level 2 and programming, upload/download. This is the service access level.								

Installation and module placement reference

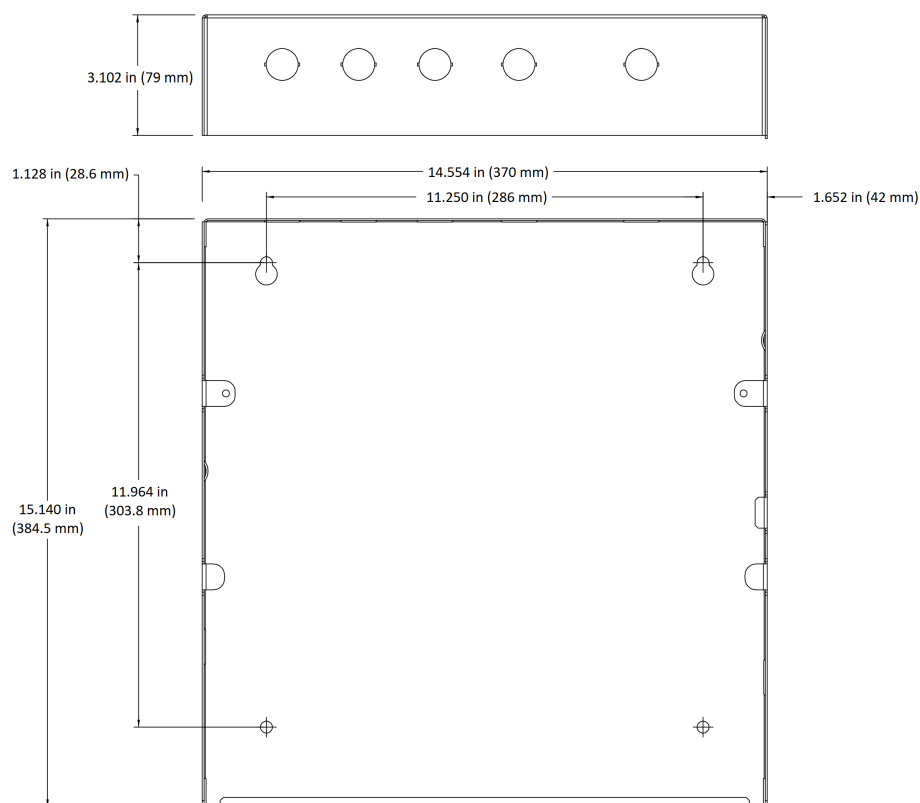


Figure 4: Cabinet details

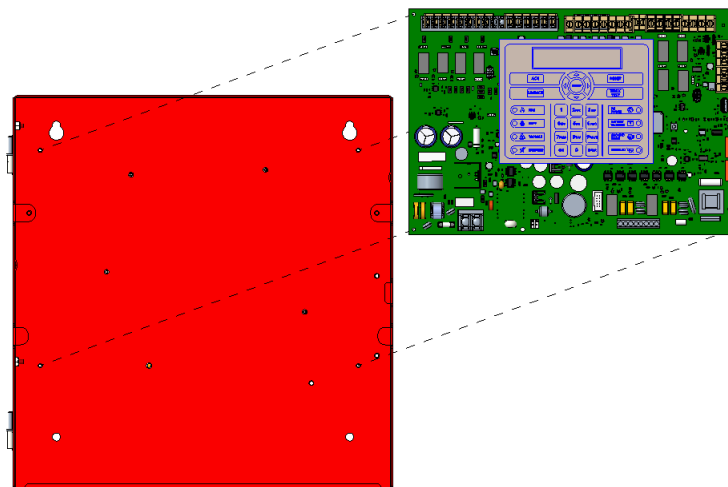


Figure 5: Power limited (shaded) and non-power limited wiring areas

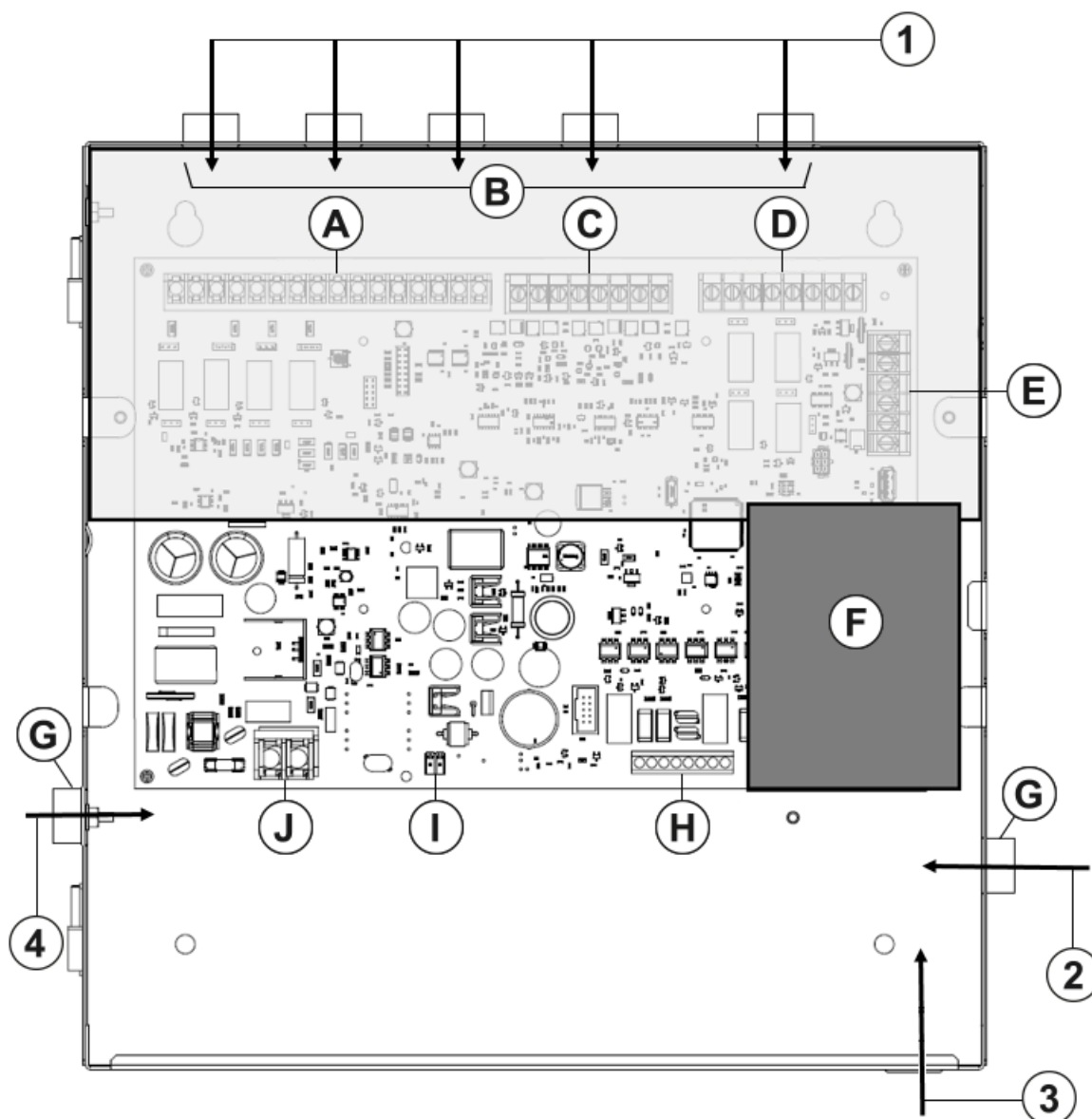


Figure 6: Mounting main system board

Callout	Description	Callout	Description
1	Power limited (PL) circuits: IDC, NAC, relay, auxiliary power, annunciator wiring	2	Non-power limited (NPL) circuit: DACT, city circuits
3	NPL circuit: battery connection if located in a separate battery cabinet	4	NPL circuit: AC power
A	IDC circuit	B	PL conduit entry
C	NAC circuit	D	Relays circuit
E	Annunciator and auxiliary circuits	F	City circuit card
G	NPL conduit entry	H	DACT connection
I	Battery connection	J	AC power

Additional compatible equipment and reference

Table 19: Additional product reference data sheets

Title	Document number
4009 IDNet NAC Extender	S4009-0002
Photoelectric Smoke Detectors for Two-Wire and Four-Wire Bases with Smoke/Heat Detection	S4098-0059
Electronic Horn, Free-Run or SmartSync Operation, Non-Addressable	S4901-0010
SmartSync Two-Wire Operation, Non-Addressable Mini-Horns	S4901-0013
SmartSync™ 2-Wire Operation, Non-Addressable Electronic Chime	S4902-0004
Non-Addressable Audible/Visible Notification Appliances for 4-Wire Operation (Horn/Strobe)	S4903-0011
Visible Notification Appliances with Synchronized Flash;Non-Addressable, SmartSync Operation Compatible	S4906-0001
SmartSync Operation Audible/Visible Notification with Horn and Synchronized Flash, Non-Addressable	S4906-0002
Weatherproof Notification Appliances (non-addressable) Wall Mount Visible Only (V/O) and Audible/Visible (A/V)	S4906-0010
Multi-Candela, High Intensity (non-addressable) Strobe and Horn/Strobe	S4906-0011
SmartSync Operation Audible/Visible Notification with Chime and Synchronized Flash, Non-Addressable	S4906-0012
Multi-Tone Horns; SmartSync Controlled or Free-run; with 520 Hz output, Non-Addressable	S49CMT-0001
Audible/Visible Notification Appliances; Multi-Tone FM Approved* Horn/Strobe with 520 Hz Output, Non-Addressable	S49CMTV-0001