Simplex

LifeAlarm® Fire Alarm Controls

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

4009 IDNet™ NAC Extender For Control from 4010 or 4100U IDNet Communications, or Conventional NACs

Features

Provides additional notification appliance circuit (NAC) capacity with flexible operation modes and power-limited design

Four, Class B (Style Y) NACs are standard:

- Rated 2 A @ 24 VDC, compatible with standard 24 VDC notification appliances
- Can be selected to provide synchronization for Simplex® visible notification strobe flashes
- Capable of controlling TrueAlert™ non-addressable notification appliances operating with SmartSync™ two-wire control mode

Input control can be from either:

- IDNet addressable communications from a Simplex model 4010 or 4100U Fire Alarm Control Panel**
- Or from one or two conventional 24 VDC NACs with multiple output control options

IDNet communications control benefits:

- Provides status monitoring and individual NAC control using a single address per 4009 IDNet NAC Extender
- Supports IDNet "Device Level" earth fault location

WALKTEST™ operation is available with either input choice†

Internal 8 A power supply/battery charger:

- Charges internal batteries up to 12.7 Ah or up to 18 Ah batteries in external cabinet
- Provides status monitoring of battery, input power, and earth faults

Optional 4009 IDNet NAC Extender modules:

- IDNet Communications Repeater provides Class B (Style 4) or Class A (Style 6) output
- IDNet Communications Fiber Optic Receiver/Repeater, available as Class B or Class A
- Four additional Class B NACs, rated 1.5 A @ 24 VDC
- Class A (Style Z), Two Circuit Adapter Module

UL Listed to Standard 864

External Accessories

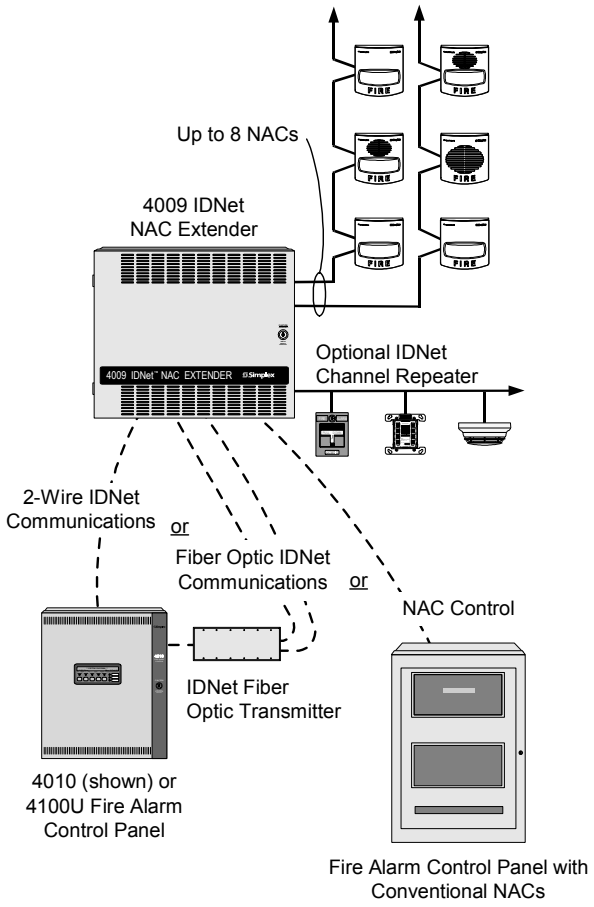
4090 Series IDNet communication fiber optic transmitters:

- For applications requiring the data integrity available with fiber optic communications
- Available as Class B (Style 4) or Class A (Style 7)
- Mounts in standard six-gang electrical box

External battery cabinet for 18 Ah batteries

** Simplex IDNet addressable communications are protected by U.S. Patent No. 4,796,025. Refer to specifications for additional IDNet wiring information. 4100U requires revision 11 software or higher for compatibility. 4010 requires revision 2 software or higher for compatibility.

† Simplex WALKTEST service testing is protected under U.S. Patent No. 4,725,818.



4009 IDNet NAC Extender Connection Reference Drawing

Introduction

ADA Compliance. Complying with the notification requirements of ADA (Americans with Disabilities Act) may require more notification appliance power than is available within the fire alarm control panel. When additional power is required, a Simplex 4009 IDNet NAC Extender can provide up to 8 A of NAC power with up to eight, supervised reverse polarity NACs.

Location Flexibility. The 4009 IDNet NAC Extender can be mounted close to a compatible dedicated host panel or can be located remotely for convenient power distribution. Multiple operation modes and multiple connection options further increase location flexibility.

Additional Information. For additional operation detail and application information, refer to Installation Instructions 574-181.

* ULC listed model is 4009-9202CA. 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 7300-0026:214 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.

Application and Operation Information

IDNet Addressable Communications Compatible. Up to five, 4009 IDNet NAC Extenders can be controlled on a single IDNet communications channel. Each output NAC can be individually controlled for general alarm or selective area notification requiring only one point address per Extender. Individual Extender NACs can also be manually controlled from the host panel. IDNet controlled extenders will inform the host panel of troubles via IDNet communications.

Optional IDNet Repeaters. IDNet communications can be repeated with the optional IDNet Repeater Module or with the optional Fiber Optic Receiver Module. Up to 100 of the IDNet channel points can be repeated once (refer to pages 3 and 5 for details). Repeated IDNet communications also support the "device level" earth fault location utility of the host panel.

Hardwire Control Applications. For applications where an existing (or new) conventional NAC needs additional power, the 4009 IDNet NAC Extender can be controlled directly from the NAC. Either one or two NACs, from either the same, or from different host fire alarm control panels, can be connected to control the 4009 IDNet NAC Extender output NACs. Multiple control selections provide flexible operation. (Refer to page 4 for more detail.) Alarms from the host panel will activate the four, 4009 IDNet NAC Extender NACs (or optionally, eight NACs) to extend the alarm.

The 4009 IDNet Extender monitors itself and each of its output NACs for trouble conditions, including earth faults. Extenders wired to conventional NACs will indicate a trouble by opening the path to the NAC's end-of-line resistor, but retaining the ability to respond to alarms. Individual troubles are also annunciated by LEDs located on the 4009 IDNet NAC Extender main circuit board. (Refer to page 7 for more diagnostic information.)

Product Selection

Standard Models

Model	Description	
4009-9201	120 VAC input	4009 IDNet NAC Extender with 4, Class B (Style Y) NACs and 8 A power supply
4009-9202CA*		
4009-9301	240 VAC input	

* ULC listed model

Optional Modules (for on-site installation)

Model	Description		Comments
4009-9807	Additional four point NAC module, rated 1-1/2 A, Class B (Style Y),		One maximum
4009-9808	Dual Class A (Style Z) adapter (for two NAC outputs)		Select as required (4 maximum)
4009-9809	IDNet Repeater, output is Class A (Style 6) or Class B (Style 4)		Select **either** an IDNet Repeater **or** a Fiber Optic Receiver as required
4009-9810	Fiber Optic Receiver	Class B (Style 4)	
4009-9811		Class A (Style 7 fiber, Style 6 IDNet)	
4009-9805	Red Appliqué for door		Select if required
2975-9801	Semi-Flush Trim Kit	Beige trim	1-7/16" wide (78 mm), use if required for semi-flush installations
2975-9802		Red trim	

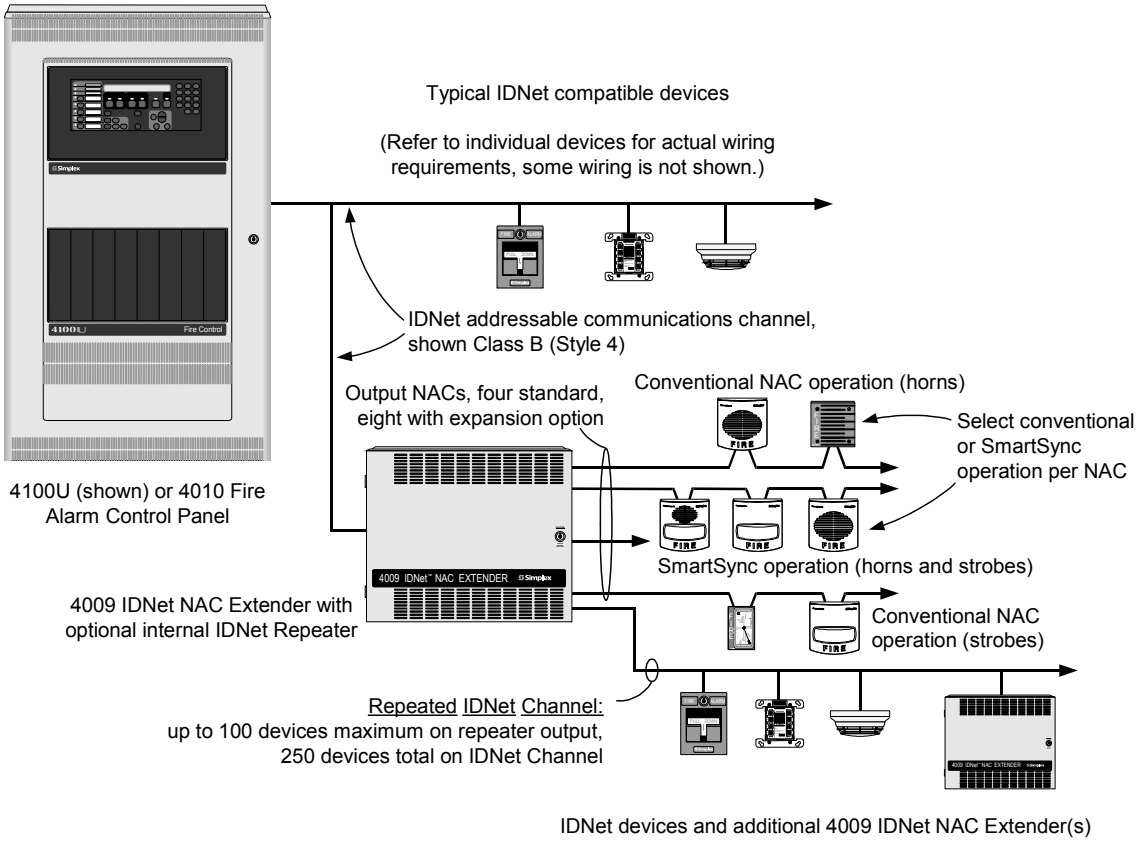
Battery Selection (select battery size per system requirements)

Model	Description	Comments
2081-9272	6.2 Ah Battery, 12 VDC	Two batteries are required, 24 VDC operation
2081-9273	8 Ah Battery, 12 VDC	
2081-9274	10 Ah Battery, 12 VDC	
2081-9288	12.7 Ah Battery, 12 VDC	
2081-9275	18 Ah Battery, 12 VDC	Requires external battery cabinet, two batteries are required, 24 VDC operation

External Accessories (select per system requirements)

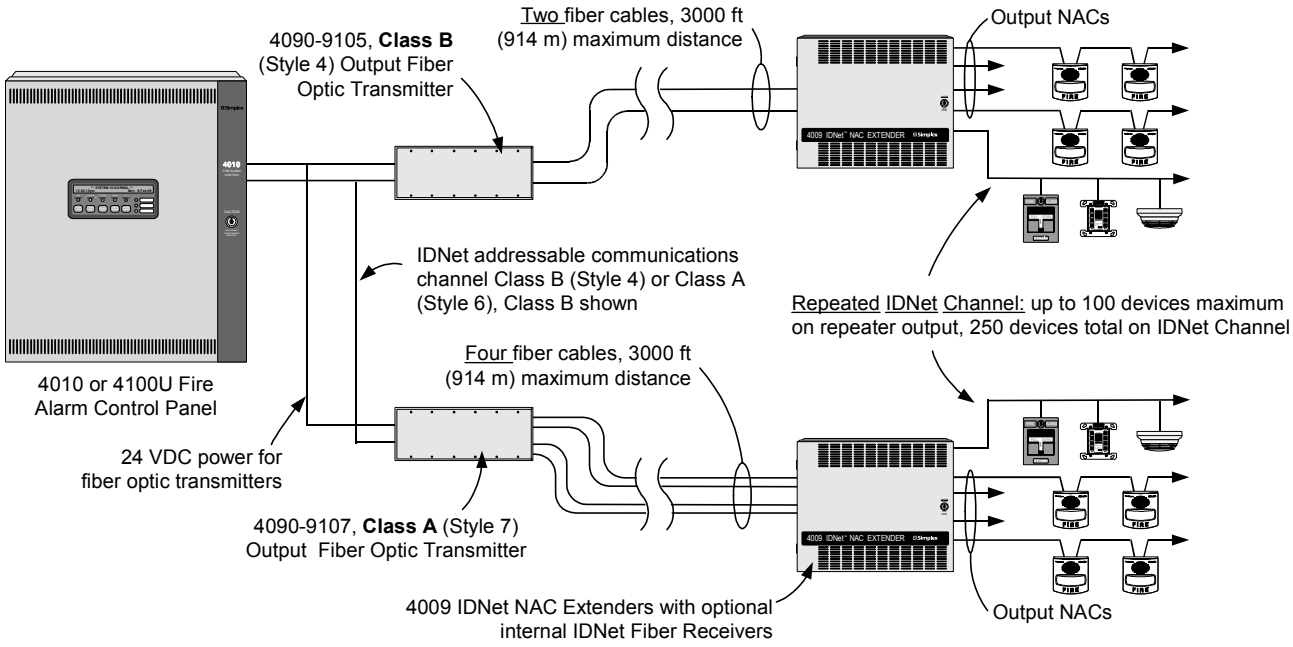
Model	Description		Comments
4090-9105	IDNet Fiber Optic Transmitter	Class B (Style 4) operation	Mounts in six-gang electrical box, refer to page 4 for mounting details
4090-9107		Class A (Style 7) operation	
4009-9801	External battery cabinet for 18 Ah batteries, beige		16-1/4" W x 13-1/2" H x 4-1/8" D (413 mm x 343 mm x 105 mm)

Typical IDNet Connection Example



NOTE: Up to five (5) 4009 IDNet NAC Extenders may be connected to one IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver).

Typical Fiber Optic System Connections



NOTE: Up to five (5) 4009 IDNet NAC Extenders may be connected to one IDNet channel. IDNet communications can be repeated only once (can pass through only one series connected repeater or one fiber optic receiver). Fiber optic transmitters connect to only one 4009 IDNet NAC Extender.

Hardwire Control Connection Information

NAC Input Selections. The 4009 IDNet NAC Extender can be selected to:

- Track input NAC operation **or** to provide a locally generated code, selectable per NAC input
- If selected for local coding, NAC outputs can be either **Temporal Coded** or **60 Beats/min March Time Coded,** one code selection per extender (input NACs must be on continuous with Alarm)
- Additionally, NAC outputs can be selected to provide the Simplex strobe synchronization signal. This signal will synchronize the flashes of synchronized strobes but will be ignored by free-run strobes and audible devices. (Strobes are for operation by noncoded NACs.)

NAC input to NAC output control can be selected for standard and optional NACs per the following table:

Conventional NAC Output Operation Options

Input	A	B	C
NAC 1	NACs 1 & 2, 5 & 6	NACs 1-4	NACs 1-8
NAC 2	NACs 3 & 4, 7 & 8	NACs 5-8	None

SmartSync NAC Output Operation

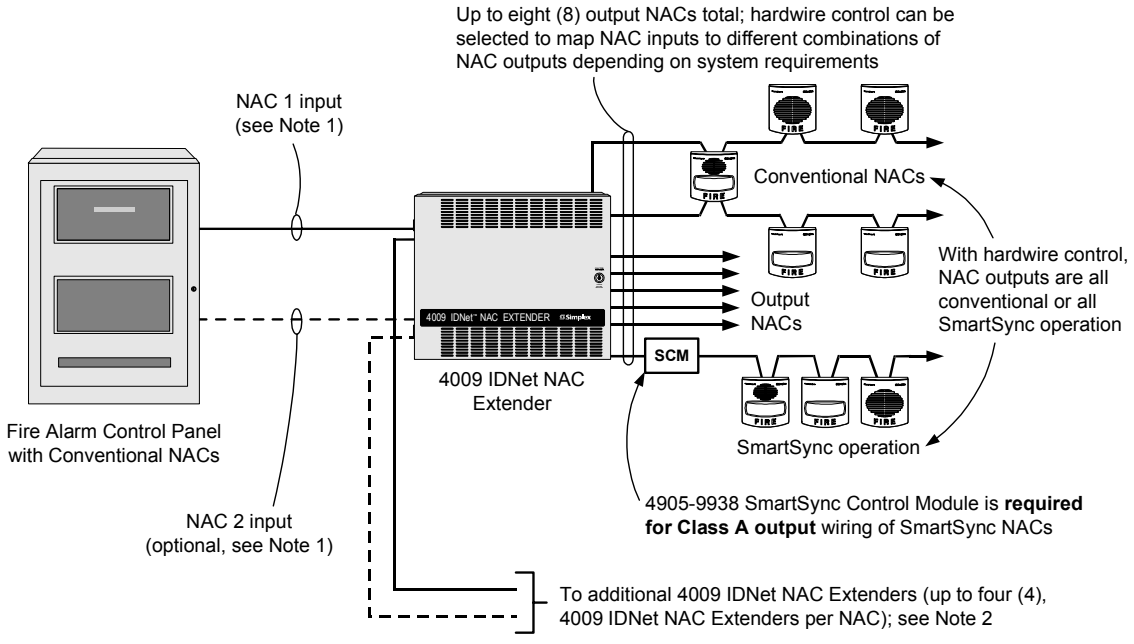
Input	NAC Control Function	
NAC 1	Strobe Control	All NAC outputs (1-8)
NAC 2	Horn Control	

SmartSync Notification Appliance Control

The TrueAlert™ Notification Appliance product line includes addressable and non-addressable operation. Non-addressable models are available with 2-wire SmartSync operation or conventional 4-wire operation. The following details apply to use with the 4009 IDNet NAC Extender:

- TrueAlert non-addressable models with **SmartSync** operation allow **audible notification to be separately controlled over the same wire pair that controls visible notification** (protected under U.S. Patent No. 6,281,789)
- 4009 IDNet NAC Extenders can be selected to provide SmartSync operation whether controlled by IDNet communications or conventional NACs
- IDNet control allows output NACs to be **individually selected** for conventional **or** SmartSync operation
- With NAC input control, **all** output NACs are selected for **either** conventional **or** SmartSync operation
- **Class A (Style Z)** SmartSync operation requires SmartSync Control Module (SCM) 4905-9938 (refer to data sheet S4903-0010 for details)
- Refer to data sheet S4009-0003 for TrueAlert addressable operation details, contact your local Simplex product supplier for further information on specific TrueAlert notification appliances

Hardwire Control NAC Connection One-Line Reference Diagram



Notes:

1. For separate audible and visible output NAC control, or SmartSync NAC output operation, two (2) input NACs are required. NAC 1 is "on-until-reset" and NAC 2 is "on-until-silenced."
2. To synchronize strobe flash outputs for up to four (4) 4009 IDNet NAC Extenders, use the synchronized strobe output from a Synchronized Flash Module (4905-9914 for Class B operation, 4905-9922 for Class A operation) or, if available, from a NAC selected to provide synchronized strobe flash output. **NOTE: DO NOT USE a NAC selected for SmartSync operation for this function.**

Refer to Installation Instructions 574-181 for additional information and application guidance

4009 IDNet NAC Extender Specifications

Input Voltage		
120 VAC Input (4009-9201)	3A @ 102-132 VAC, 60 Hz	
240 VAC Input (4009-9301)	1.5A @ 204-264 VAC, 50/60 Hz	
Hardwire Control from External NACs, Input Requirements	Conventional reverse polarity operation	
	3 mA @ 24 VDC in Alarm (rated 4.5 mA maximum 21.1 to 29.1 VDC)	
	Maximum operating voltage is 18 to 32 VDC, filtered or unfiltered	
Output Ratings		
Auxiliary Output	500 mA @ 24 VDC nominal	Total current must not exceed 8A
Standard NACs	2 A each @ 24 VDC nominal	
Optional NACs (requires 4009-9807)	1.5 A each @ 24 VDC nominal	

Optional Modules

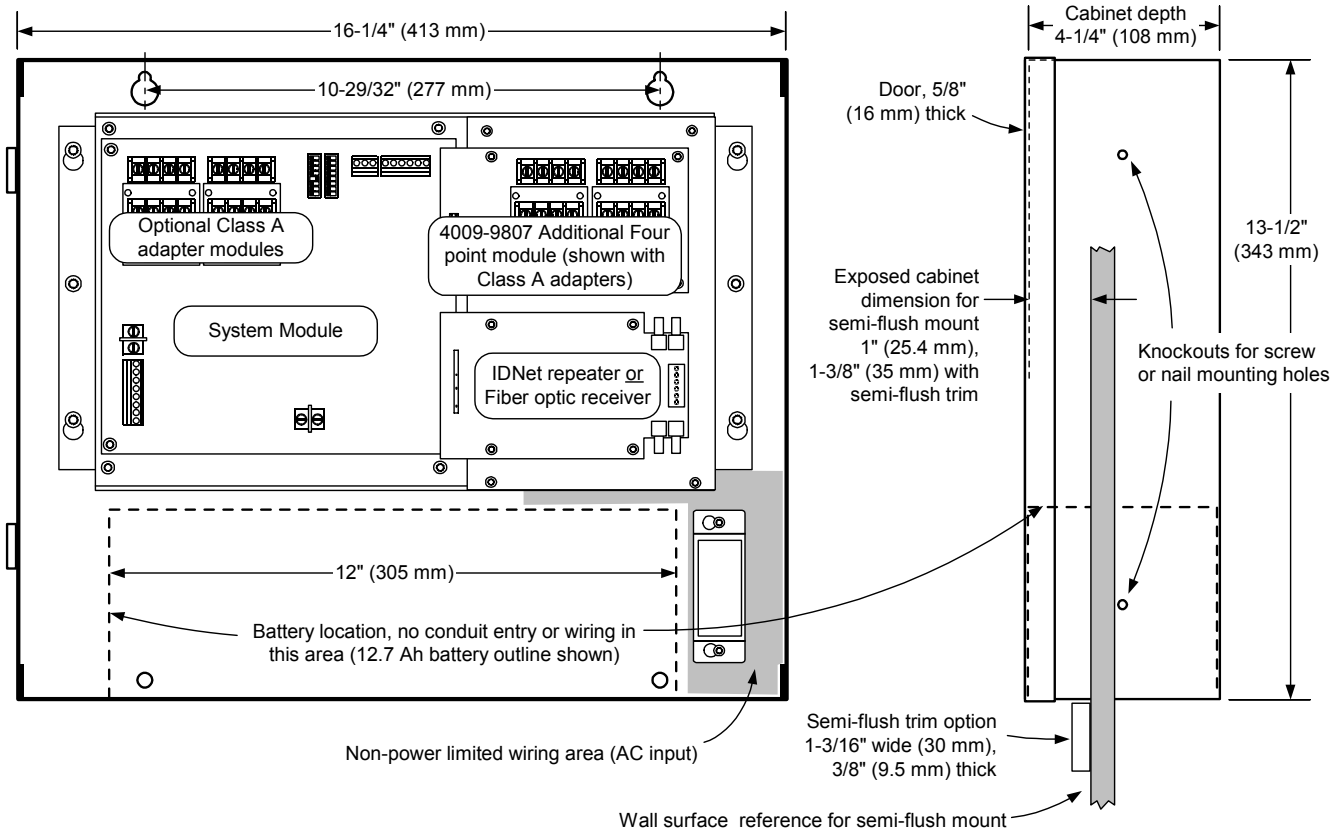
IDNet Repeater Module (4009-9809)	
Input Power	70 mA @ 24 VDC, system supplied
IDNet Input, One Address	Maximum distance from IDNet source is 2500 ft (762 m)
IDNet Output Specifications	Repeated IDNet output for up to 100 devices (total IDNet devices not to exceed 250 per channel)
	Maximum distance to farthest device from 4009 IDNet NAC Extender output is 2500 ft (762 m)
	Total distance including “T-taps” is 10,000 ft (3048 m)
	Class A (Style 6) loop maximum distance is 2500 ft (762 m), no “T” taps
Fiber Optic Receiver Modules	
Input Current	4009-9810, Class B (Style 4), 65 mA @ 24 VDC, system supplied
	4009-9811, Class A (Style 7), 80 mA @ 24 VDC, system supplied
IDNet Output Specifications	Same as those for Repeater Module (see above)
Fiber Optic Transmission Distance	3000 ft (914 m) maximum
General (LED status indicators are listed on page 7, dimensions and mounting details are on page 6)	
Operating Temperature	32° to 120° F (0° to 49° C)
Operating Humidity Range	10% to 90% RH from 32° F to 104° F (0° C to 40° C)
Wiring Connections*	Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)

Fiber Optic Transmitter Specifications

Input Voltage	18.9-32 VDC from compatible listed fire alarm supply
Input Current	4090-9105, Class B (Style 4), 30 mA @ 24 VDC
	4090-9107, Class A (Style 7), 35 mA @ 24 VDC
Fiber Optic Connections and cable requirements	Type ST connectors
	Multimode, graded index, 50/125µm, 62.5/125 µm, 100/40 µm, or 200 µm
	4090-9105, Class B (Style 4) operation, two fiber cables required
	4090-9107, Class A (Style 6) operation, four fiber cables required
Module Size (with mounting bracket)	6-13/16” W x 3-3/4” H x 1-1/8” D (173 mm x 95 mm x 29 mm)
On-board Status Indicators	Green LED flashing = transmit
	Red LED flashing = receive
	Separate red LED on 4090-9107 = Class A (Style 7) receive
Communications	Simplex IDNet
Fiber Optic Transmission Distance	3000 ft (914 m) maximum
Wiring Connections*	Terminal blocks for 18 AWG (stranded) to 12 AWG (solid)
Operating Humidity	10% to 90% RH from 32° to 104° F (0° to 40° C)
Operating Temperature	32° F to 120° F (0° to 49° C)

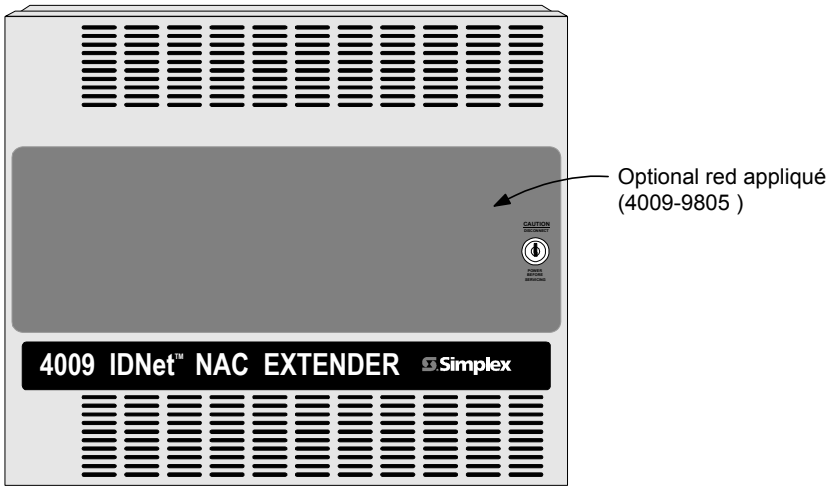
* Metric wire equivalents: 18 AWG = 0.82 mm^2; 12 AWG = 3.31 mm^2

4009 IDNet NAC Extender Mounting and Module Placement Information

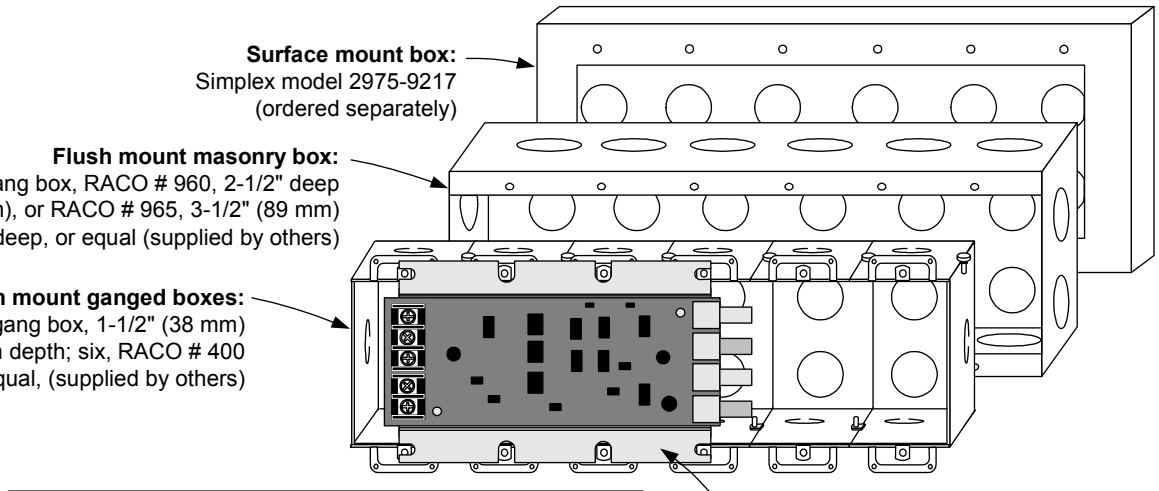


NOTE: Recommended conduit entrance varies with module selection. Refer to general installation instructions 574-181, specific module installation instructions, and to field wiring diagrams 842-068 before locating conduit entrance.

4009 IDNet NAC Extender Cabinet with Door Detail



4090-9105/9107 IDNet Fiber Optic Transmitter Mounting Information



Service Diagnostic Features

Power-up Self-Diagnostics. Upon power-up, the 4009 IDNet NAC Extender tests each module and performs earth fault diagnostics. Trouble conditions are communicated to the host control panel and are also displayed on diagnostic status LEDs in the 4009 IDNet NAC Extender. When connected via IDNet communications, detailed status information is available at the host. When controlled with conventional NAC inputs, common troubles are signaled by providing a polarized open circuit that disconnects the NAC wiring from its end-of-line resistor but still allows a reversed polarity alarm to be received.

Door Mounted Reference Label. The 4009 IDNet NAC Extender has a detailed programming and diagnostic label inside the front door that provides a quick reference for both installation and checkout.

LED Status Indicators are provided for the following:

- **Each NAC** (standard and optional) has a dedicated yellow LED that:
  - During supervision provides a slow flash to indicate a short circuit condition and a fast flash to indicate an open circuit
  - During an alarm, the LED follows the NAC output (on steady or flashing with coded output)
- **Four, general status yellow LEDs** provide nine separate indications listed in priority of urgency. As a trouble is eliminated, any remaining trouble(s) will then be indicated until the 4009 IDNet NAC Extender is returned to normal operation.
- **AC power status** is indicated by a green LED that is on when AC is normal. During low AC (brownout) conditions or with no AC, the LED is off. Additional power and battery status is indicated by the general status LEDs.

4009 IDNet NAC Extender Current Chart

Panel Module Selection (shaded model numbers are optional modules)

Model	Description		Supervisory Current	Actual Supervisory	Alarm Current	Actual Alarm
4009-9201	120 VAC input	Basic Panel	85 mA	85 mA	185 mA	185 mA
4009-9301	240 VAC input					
4009-9807	Additional Four Point NAC		40 mA	+	+ NAC loads (add below)	+ NAC loads (add below)
4009-9808	Dual Class A Adapter (current included in basic panel value)		–	–	–	–
4009-9809*	IDNet Repeater		70 mA	+	70 mA	+
4009-9810*†	Fiber Optic Receiver, Class B		65 mA		65 mA	
4009-9811*†	Fiber Optic Receiver, Class A		80 mA		80 mA	
IDNet Devices, 0.7 mA each, maximum of 100 (see note 5)			Total devices x 0.7 mA each	+	Total devices x 0.7 mA each	**(A1)** +
Auxiliary Power Output, calculate per total device requirements (see note 5)			500 mA maximum	+	500 mA maximum	**(A2)** +
			Total Supervisory Current =	**(A)** +		
					Total 4009 IDNet NAC Extender Panel Alarm Current =	**(B1)**

* Only one of these three modules can be chosen for a single 4009 IDNet NAC Extender.

† **NOTE:** IDNet Fiber Optic Transmitter current is supplied from the host fire alarm control panel.

NAC Loads

NAC Type	NAC Circuit #	NAC Alarm Current
Standard Panel NACS, 2 A maximum per NAC (see note 5)	Circuit 1	+
	Circuit 2	+
	Circuit 3	+
	Circuit 4	+
Optional Four Point NAC Module, 1.5 A maximum per NAC (see note 5)	Circuit 5	+
	Circuit 6	+
	Circuit 7	+
	Circuit 8	+
	Total NAC Loads Alarm Current =	**(C)**
	Total 4009 IDNet NAC Extender Panel Alarm Current (enter B1 from above) =	**(B2)** +
	Total Alarm Current =	**(D)**

Procedure:

1. Calculate total panel supervisory current (A).
2. Calculate total panel alarm current (B1) [convert mA to A, example: 350 mA = 0.35 A]. Copy (B1) into block (B2).
3. Calculate total NAC loads alarm current from notification appliance ratings (C).
4. Add (C) + (B2) to determine total alarm current (D).
5. Total of IDNet Device Current (A1) + Auxiliary Power Output Current (A2) + NAC Loads Alarm Current (C) is 8 A maximum.
6. Refer to Simplex battery selection document 900-012 for recommended battery size for specific standby requirements (i.e. 24 hours supervisory, 5 minutes of alarm). Internal cabinet space is provided for batteries up to 12.7 Ah.