IDNet Addressable Devices, Model 4090-9007 Signal IAM (Individual Addressable Module)

Features

- Signal IAMs add additional selective signaling for Simplex 4007ES, 4008, 4010ES, 4100ES, and 4100U series fire alarm control units (FACUs)
- Signal output notification appliance circuit (NAC) wiring is supervised and connected to the signal input under IDNet communications control
- NAC output is rated 0.5 A for special application or regulated 24 VDC appliances, or for audio operation: 12.5 W at 25 VRMS, 35 W at 70.7 VRMS. You can wire NAC output as Class B or Class A, see Specifications
- The signal input includes signal coding of horn/strobe control, strobe synchronization, or other coding. Coding at the Signal IAM through IDNet addressable communications is not supported
- 4100U compatibility requires Software Revision 11.11.01 or higher
- Signal IAMs are not compatible with 4010 FACU IDNet communications

Supervision features

- Relay contacts isolate signal inputs from outputs during supervision and do not monitor signal presence. Signal input sources require separate monitoring
- During supervision, signal outputs are isolated from signal inputs by open contacts. This means you can use them with sensitive compartmented information facilities (SCIF) applications

Operation details

- The IDNet addressable communications loop powers and supervises Signal IAM operation. The IAM does not require separate 24 VDC. The onboard NAC requires separate signal power
- Signal IAM communications use a single physical address, however, each Signal IAM reduces the IDNet loop capacity by two addresses to accommodate the extra power required for output NAC supervision

Compact construction

- Mounts in a standard 4 in. square electrical box
- A visible LED flashes to indicate communications
- Optional covers are available that do not hinder LED visibility
- Screw terminals for wiring connections

UL Listed to Standard 864

Description

Additional NAC Operation

For applications requiring additional individual NAC supervision and control, the 4090-9007 Signal IAM provides a 0.5 A remote NAC under host FACU addressable point control. IDNet communications monitor the Signal IAM status and then connects the output NAC to the separate signal input for local alarm notification.

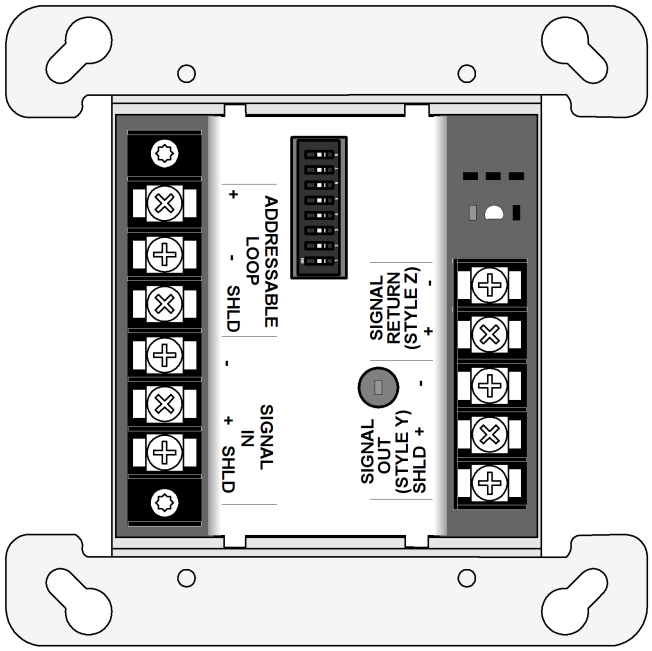
Note: The Signal IAM provides additional NACs to the host FACU, it does not provide additional power. See One-line wiring reference for additional system requirements.

Audio Control

The Signal IAM also allows the FACU to use IDNet communications to control audio circuits from a compatible Simplex audio control panel. Only one signal source is used for each Signal IAM. Control of DC powered appliances such as strobes requires separate Signal IAMs.

Note: Firefighter phone circuits are not supported.

Figure 1: 4090-9007 Signal IAM



Application reference

Selective Signaling

Use Signal IAMs to provide additional local area notification zones in accordance with the applicable version of NFPA 72, ***the National Fire Alarm and Signaling Code***, local codes and system requirements.

General Signaling

Use Signal IAMs to connect to higher current appliances. Rated output is 0.5 A.

For retrofit of Class B NAC wiring, where only two wires are available you can make in and out connections at the Signal IAM. This maintains appliance wiring supervision in accordance with the applicable version of NFPA 72 and local codes.

Note: Program Signal IAM operation at the FACU in accordance with system requirements.

Wiring requirements

Wire Signal IAMS with both IDNet communications and signal/NAC input to the latest requirements of UL 864, and to NFPA 72 in accordance with local code. See One-line wiring reference for additional information.

Product selection

Table 1: Product selection

Model	Description
4090-9007	Signal IAM. Programming types are hardware type SIGNAL for 4008. Device type SIGIAM for other compatible FACUs
4090-9801	For semi-flush mounted box. Optional trim plate with LED viewing window. Includes mounting screws, galvanized steel
4090-9802	For surface mounted box
4090-9116	IDNet Communications Isolator. May be required for loop connections to Signal IAM, see One-line wiring reference. For details, refer to datasheet ***S4090-0005*** .
4090-9122	IDNet Isolator2. May be required for loop connections to Signal IAM, see One-line wiring reference. For details, refer to datasheet ***S4090-0017*** .
4098-9766	IDNet Isolator2 Base. May be required for loop connections to Signal IAM, see One-line wiring reference. For details, refer to datasheet ***S4098-0026*** .
4098-9767	
4081-9008	End-of-line resistor for Signal IAM NAC output when wired Class B, 10 Kohm, 1/2 W (ref. 733-894)
2081-9044	Overvoltage Protector. For up to 200 mA DC or IDNet communications. Required where wiring exits and enters a building. For details, refer to datasheet ***S2081-0016*** .

Specifications

Table 2: Electrical

Specification	Rating
Communications	IDNet communications, one address
Channel loading	Consumes two unit loads. Each Signal IAM reduces the IDNet loop capacity by two addresses. Refer to the IDNet source for the total available address capacity
NAC input choices	Nominal 24 VDC from FACU NAC or NAC extender
	25 VRMS or 70.7 VRMS from compatible listed audio source
NAC output ratings	Special application or regulated 24 VDC appliances = 0.5 A
	Audio rating for speakers = 0.5 A at 25 VRMS (12.5 W) or 70.7 VRMS (35 W)
Appliance compatibility details	Compatible with Simplex strobe synchronization. Not compatible with SmartSync two-wire horn/strobe control or with TrueAlert addressable control. For horn/strobe appliance applications, use four-wire appliances, see datasheet ***S4903-0011*** . For horn control, select horn operation as free-run
Wire connections	Screw terminals for in/out wiring, 18 to 12 AWG wire (0.82 mm² to 3.31 mm²)
End-of-line resistor	For Class B NAC, 10 Kohm, 1/2 W, 4081-9008

Table 3: Wiring distance information reference

Specification	Rating
IDNet communications, general reference	2500 ft (762 m) maximum distance from FACU
	10,000 ft (3048 m) maximum total wiring distance, including T-Taps on Class B wiring
	Note: IDNet communications specifications may vary depending on the host FACU, refer to specific FACU product documentation for details
NAC wiring distance considerations	Wiring connections from the NAC Riser, through the Signal IAMs, and to the notification appliances are branch circuits on the NAC Riser and must be calculated accordingly. Wiring distances are limited by wire size and the allowable voltage drop from the FACU to the Signal IAM, and then to the farthest notification appliance for each branch connection. The Signal IAM voltage drop is considered negligible for wiring distance calculations.

Table 4: Mechanical

Specification	Rating
Dimensions	4 in. x 4 1/8 in. x 1 1/4 in. D (102 mm x 105 mm x 32 mm)
Temperature range	32° to 120° F (0° to 49° C) indoor operation only
Humidity range	Up to 93% RH at 100° F (38° C)

Table 5: Additional information

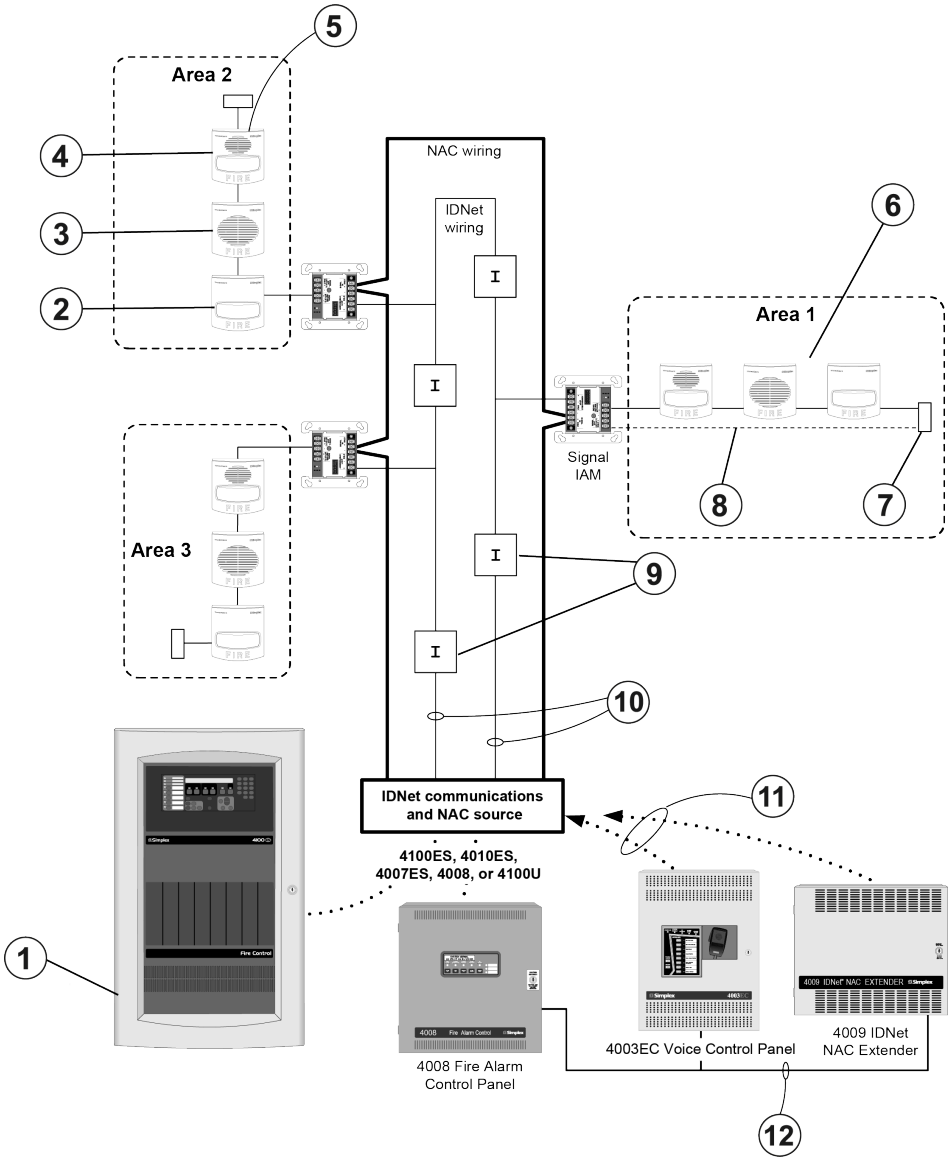
Product	Document
Installation Instructions	*579-670*
4100ES Basic	*S4100-0031*
4100ES Audio	*S4100-0034*
4007ES Hybrid	*S4007-0001*
4003EC Voice/Audio Panel	*S4003-0002*
4090-9116 IDNet Isolator	*S4090-0005*
4090-9122 IDNet Isolator2	*S4090-0017*
4098-9767 IDNet Isolator2 Base	*S4098-0026*
4098-9793, 4098-9777 Isolator Base	*S4098-0025*
4008 Control Panel	*S4008-0001*

Table 5: Additional information

Product	Document
4010ES Control Panel	*S4010-0004*
4010ES Control Panel, international	*S4010-0006*

One-line wiring reference

Figure 2: One-line wiring reference



Callout	Description
1	4007ES, 4010ES, 4100ES, or 4100U FACU. 4100ES shown
2	Strobe (V/O)
3	Horn
4	Horn/Strobe (A/V)
5	**A/V Note:** Use four-wire A/Vs, not SmartSync control, with the 4090-9007: 4903-9425, 4903-9426, 4903-9427, 4903-9431, 4903-9732, 4903-9433
6	Typical audible and visible notification appliances, see A/V note
7	End of line resistor for Class B operation
8	Return wiring for Class A operation
9	When IDNet SLC isolation is required, use the 4090-9116 IDNet addressable isolator, 4090-9122 IDNet Isolator2, or 4098-9766 , 4098-9767 IDNET Isolator2 bases, or 4098-9777, 4098-9793 IDNet Isolator bases. Isolator2 offers the best performance.

Callout	Description
10	Class A IDNet Riser with T-tapped branch connections is shown. You can wire this as in or out at Signal IAM if needed. **Note:** If you use isolators, ensure that the first and last isolators are close nippled, in conduit and within 20 ft (6 m) of the FACU. This is not necessary when you use the 4100-3107 IDNet+ module or for FACUs providing electrically isolated IDNet circuit outputs. When you install Isolator2s close-nippled, the system recovers from a short circuit more quickly.
11	Alternate NAC sources, drawings are not to scale
12	**4008 Note**: 4008 FACUs control the output NACs of the 4003ES Voice Control Panel and the 4009 IDNet NAC Extender by wired connections to its NAC outputs, not by IDNet communications. Refer to individual FACU installation instructions for details **4007ES, 4010ES, 4100ES, and 4100U Notes**: These FACUs control 4009 IDNet NAC extenders by IDNet communications. For 4100ES and 4100U systems, audio signals are typically provided by their system audio NACs. The 4003EC Voice Control Panel is controlled by wired connections to panel NAC outputs.

Note:

1. To determine the required NAC and IDNet wiring performance and survivability requirements, circuit classes, and placement and quantity of isolators, refer to the applicable system specifications and adopted fire code.
2. This reference wiring diagram shows a Class A signal riser providing input to each Signal IAM, and a Class A IDNet signaling line circuit (SLC) for control of the Signal IAMs. The IDNet SLC also is shown with short circuit isolation devices.
3. Signal Riser wiring is in/out, no T-tapping is allowed.

Mounting information

Figure 3: Mounting reference with 4 in. square blank cover plate

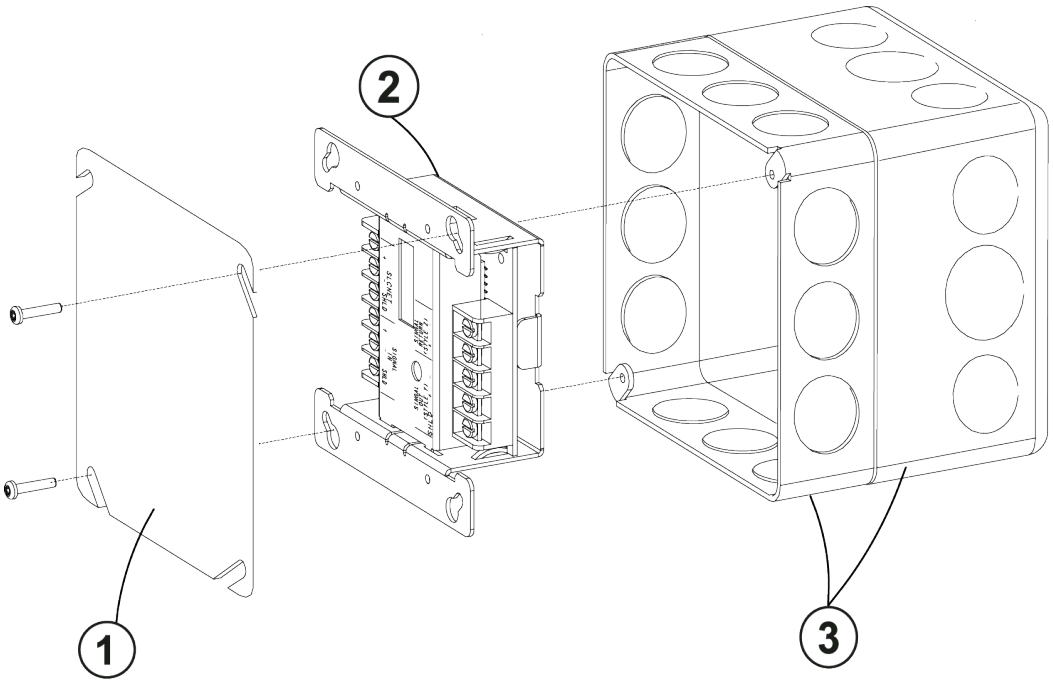


Table 6: Mounting reference callouts and description

Callout	Description
1	4 in. square cover plate, RACO 752 or equal, by others
2	Signal IAM
3	Mounting Box, by others: Square box, 4 in. (102 mm). Required depth depends on total conductor requirements Minimum depth = 2 1/8 in. (54 mm), RACO 232 or equal Extended depth, for maximum conductors, add 1 1/2 in. (38 mm) extension ring, RACO 201 or equal

Figure 4: Optional Trim Plates for Visible LED

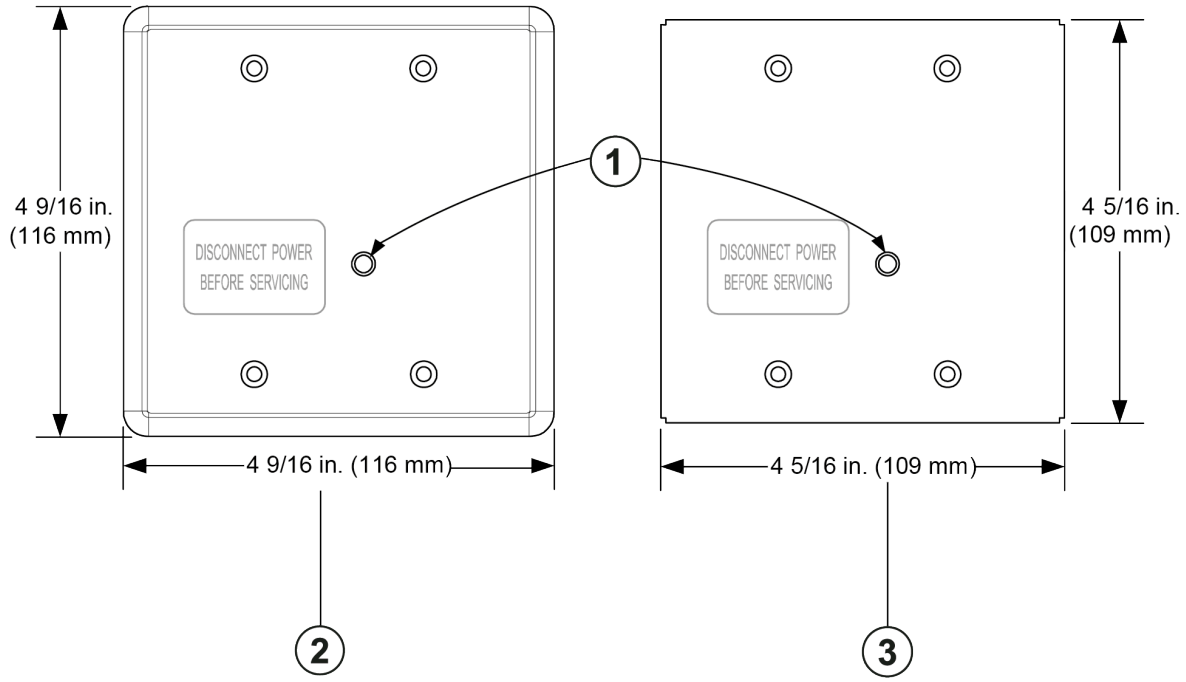


Table 7: Optional trim plates callouts and description

Callout	Description
1	Lightpipe for LED viewing
2	4090-9801, trim plate for semi-flush mounted box
3	4090-9802, trim plate for surface mounted box