AUTOCALL

*UL, ULC Approved**

A4090-9118 Relay IAM (Individual Addressable Module) with T-Sense Input

Features

Dual point operation provides a supervised multi-state input and a relay output in a single package using only one address:

- Typical applications are for damper motor control with dual damper position feedback monitoring (open and closed)
- For use with Autocall 4007ES, 4010ES, or 4100ES Fire Alarm Control Panels providing IDNet communications

Input/Output details:

- Input operation is "T-Sense" and provides supervised monitoring of normally open, dry contacts
- Status conditions are Normal, Open Circuit (trouble condition), Current Limited (position input 1), and Short (position input 2)
- Total wiring distance to supervised contacts is up to 500 ft (152 m); for indoor wiring applications
- Low power latching relay design allows IDNet communications to supply both data and module power
- Relay is set to OFF on initial power up and upon loss of IDNet communications
- Form C relay output is rated 2 A @ 30 VDC, and 0.5 A @ 120 VAC (resistive ratings)

Compact, sealed construction:

- Enclosed design minimizes dust infiltration
- Mounts in standard 4" square electrical box
- Visible LED flashes to indicate communications
- Screw terminals for wiring connections
- Optional covers are available to allow LED to be viewed after installation

UL Listed to Standard 864

Description

Single Address Dual Point Module.

The A4090-9118 Relay IAM with T-Sense allows a compatible Autocall fire alarm control panel IDNet communication channel to monitor two input contact closures with one point and control an output relay with the other point, both from a compact module requiring a single address. Module power is supplied from the IDNet communications channel eliminating the need for separate power wiring.

Multi-Point Device Description.

The input circuit and relay operation are controlled independently and may be disabled separately. Point association is determined at the host panel. At the host panel display, the device address is designated as a single hardware location (such as 1-1). The individual points are considered "sub-points" and are layered underneath (such as 1-1-1 and 1-1-2).

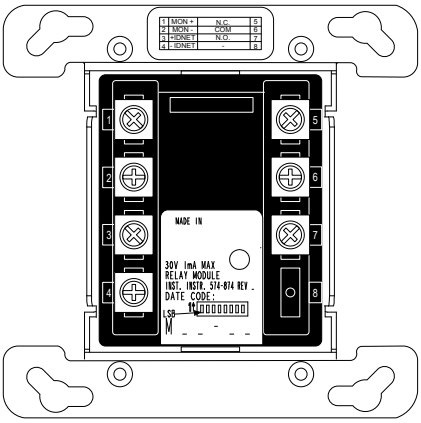

Fig 1: A4090-9118 Relay IAM with T-Sense Input (shown approximately 1/2 size)

T-Sensing Operation

Supervised Input.

The A4090-9118 Relay IAM with T-Sense has a supervised input that monitors for continuity to an end-of-line resistor and can differentiate between a short circuit contact closure and a current limited contact closure.

Four State Operation.

Normal is when all contacts are open and there is continuity to the end-of-line resistor; **Open** is when continuity does not exist to the end-of-line resistor, causing a Trouble condition; **Short,** indicates that a contact has closed that is directly connected to the input circuit; and **Current Limited** indicates that a contact has closed beyond a series connected current limiting resistor. This operation allows differentiation between two different contact types due to their wiring location, and reporting as a single IDNet addressable point to the fire alarm control panel.

Typical Applications

Efficient Package.

For smoke control applications, this module provides an efficient package for fan damper control with position feedback. The monitor point can be connected to two separate status indicator switches allowing the host panel to track the fan damper status with respect to the requested fan control operation.

General Applications.

The monitor and control points can be applied for a variety of associated or independent operations. Flexible programming abilities at the host panel can provide the association logic required for a wide variety of fire or utility operations.

* Additional listings may be applicable; contact your local product supplier for the latest status.

Wiring Reference

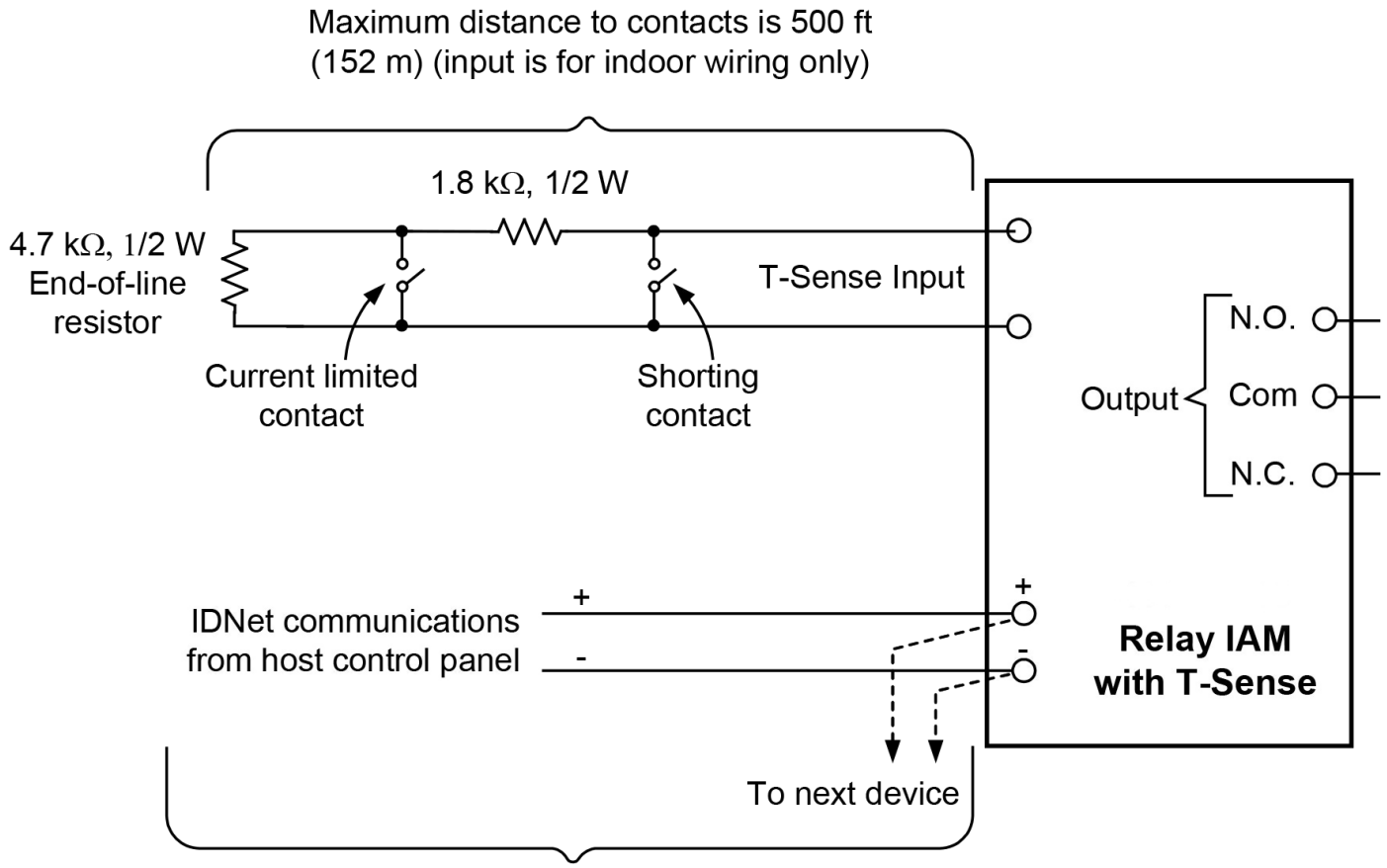

Fig 2: Wiring reference for the A4090-9118 Relay IAM with T-Sense

Note:

- A4090-9118 Relay IAM with T-Sense is illustrated in Figure 2.
- Refer to Installation Instructions 574-874AC for detailed installation information.

For Fire Alarm applications, locate loads within 3 ft (1 m) of contacts

Power Limited Contact Ratings:

2 A @ 30 VDC, resistive loads

1 A @ 30 VDC, inductive loads

Non-Power Limited Contact Ratings:

0.5 A @ 120 VAC, resistive loads

0.25 A @ 120 VAC, inductive loads

(refer to specifications for additional information)

IDNet Wiring Distances:

1. Up to 2500 ft (762 m) from host control panel.
2. Up to 10,000 ft (3048 m) total wiring distance, including "T" taps.

Mounting Information

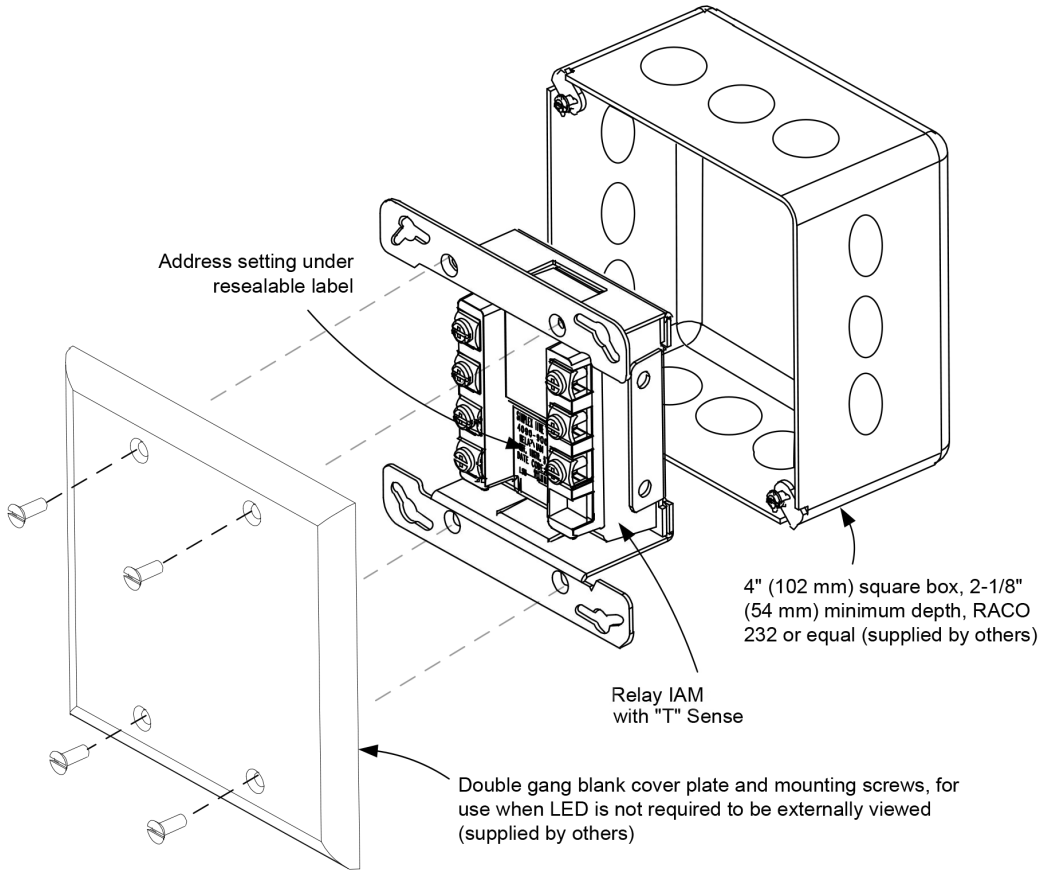

Fig 3: Mounting reference, double gang blank cover plate

Note: A4090-9118 Relay IAM with T sense is shown in Figure 3.

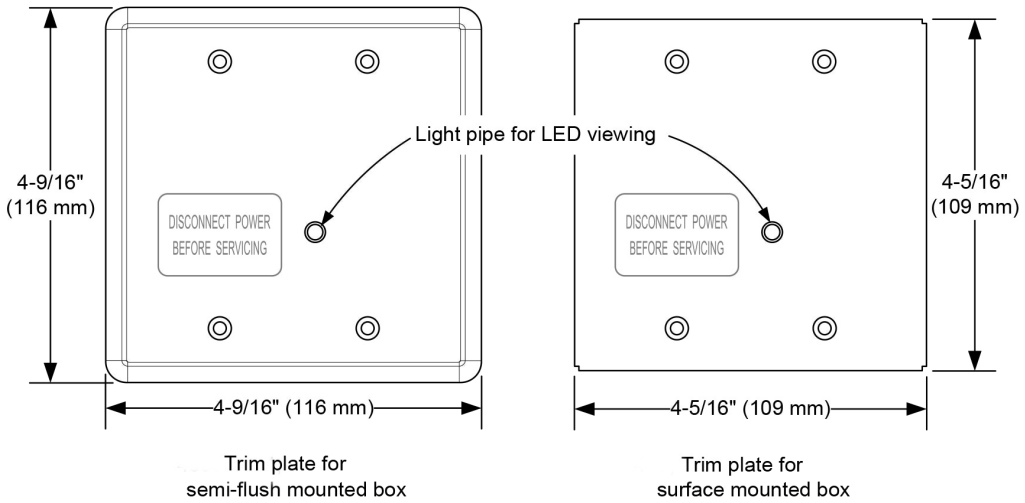

Fig 4: Optional trim plates for visible LED

Note: The following products shown in Figure 4:

- A4090-9801, Trim plate for semi-flush mounted box
- A4090-9802, Trim plate for surface mounted box

Product Selection

Table 1: Product Selection

Model	Description
A4090-9118	Relay IAM with T-Sense

Table 2: Optional Adapter and Trim Plates

Model	Description	
A4090-9813	Adapter plate to fit 4 11⁄16" (119 mm) square electrical box	
A4090-9801	For semi-flush mounted box	Trim Plate, galvanized steel, with LED viewing window; includes mounting screws
A4090-9802	For surface mounted box	

Table 3: End-of-Line Resistor Harnesses (ordered separately as required)

Model	Reference No.	Description	
A4081-9003	733-896	4.7 kΩ, 1/2 W	Use for current limited monitoring, refer to diagram below
A4081-9005	733-984	1.8 kΩ, 1/2 W	

T-Sense Input Operating Modes

Table 4: Common Circuit Status Modes

Circuit Status	Device Status	Panel Display
Normal	Switches open	Normal
Open circuit	Wiring discontinuity	Trouble

Table 5: Damper Position Monitoring Status Modes

Circuit Status	Device Status	Typical Panel Display
Short	Switch A closed	Damper Closed
Current Limited	Switch B closed	Damper Open

Table 6: Waterflow and Tamper Switch Monitoring Status Modes

Circuit Status	Device Status	Panel Display
Short	Waterflow switch closed	Fire Alarm
Current Limited	Tamper switch closed	Supervisory

Specifications

Table 7: Electrical

Specification			Rating	
Communications			IDNet communications, one address	
Power			Consumes one unit load, power supplied from a compatible IDNet communications channel	
Point Allocation Reference	**Device Type**		TRIAM	
	I/O Point Usage per Panel		2; 1 for relay, 1 for input	
	Public Points Usage		up to 3; 1 for relay, 1 for input, 1 for trouble; for points mapped to the Fire Alarm Network	
Input Requirements			Normally open dry contacts	
			Up to 500 ft (152 m) total distance from Relay IAM	
			For indoor wiring applications only	
Input Supervision Resistors			Two required, refer to Installation Instructions 574-874AC for additional information and wiring detail	
Wire Connections			Screw terminals for input and output wiring, 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)	
Relay Contact Ratings* Form C (SPDT) (not rated for incandescent switching)		**Power-Limited**	2 A @ 30 VDC, resistive	from listed fire alarm supply
			1 A @ 30 VDC, inductive	
		Nonpower-Limited	0.5 A @ 120 VAC, resistive	
			0.25 A @ 120 VAC, inductive	
* Provide circuit fusing and transient suppression as required per application. DC inductive loads can typically be diode suppressed; 120 VAC loads may require RC networks or varistors, depending on device type. Refer to Installation Instructions 574-874AC for additional information.				
IDNet Wiring Distance Reference			Up to 2500 ft (762 m) from the fire alarm control panel	
			Up to 10,000 ft (3048 m) total Class B wiring distance including T-Taps	
			Compatible with A2081-9044 Overvoltage Protectors	

Table 8: Mechanical

Specification	Rating
Dimensions	4-1/8" H x 4-1/8" W x 1-3/8" D (105 mm x 105 mm x 35 mm)
Package	Black thermoplastic housing on metal mounting plate
Temperature	32° to 120° F (0° to 49° C) indoor operation only
Humidity Range	10 to 90% RH at 90° F (32° C)
Installation Instructions	574-874AC