

# INTRINSICALLY-SAFE RELAYS

ISP Series Plug-in  
Single Channel



- u Provides Low Cost Alternative to Explosion-Proof Enclosures
- u Single Channel
- u Isolated 10A SPNO output contact
- u 24 or 120V AC Input Voltage
- u LED Status Indicator



The ISP series of Intrinsic Safe Relays provide a safe and reliable method to control a load (motor starter, relay, etc.) with an input device (switch, sensor, etc.) located in a hazardous area. The Instrument Society of America defines intrinsically safe equipment & wiring in their specification ISA-RP12.2 as: “equipment and wiring which is incapable of releasing sufficient electrical or thermal energy under normal or abnormal conditions to cause ignition of a specific hazardous atmospheric mixture in its most ignited concentration. Intrinsically safe terminations and wiring may be brought into any hazardous location of any Group classification for which it is accepted without requiring explosion-proof housing or other means of protection”.

UL Listed apparatus provides intrinsically safe circuits for use in Class I Groups A, B, C, D, Class II Groups E, F, G, and Class III Hazardous Locations. The ISP relay must be mounted in a non-hazardous area, following Macromatic Control Drawing Number ISR2A01D. In order to comply with UL requirements, intrinsically safe and non-intrinsically safe wiring must be physically separated to prevent inadvertent bypass.

Each ISP relay consists of an intrinsically safe control switch input and an electromechanical relay output. When the control switch in the hazardous area is closed, the relay is energized. When the control switch is opened, the relay is de-energized.

Typical applications include pump lift stations, grain elevators, refineries and paint rooms.

INPUT VOLTAGE 50/60Hz.	NUMBER OF CHANNELS	PRODUCT NUMBER	WIRING/ SOCKETS <sup>n</sup>
120V AC	Single	ISP120A	<p>DIAGRAM 160</p>
24V AC	Single	ISP024A	

<sup>n</sup> Both an integral spring mating clip and the appropriate 8 pin socket are included with the plug-in relay.



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# INTRINSICALLY-SAFE RELAYS

ISP Series PI plug-in  
Single Channel  
Application Data & Dimensions

## Application Data

### Input Voltage:

24 or 120V AC,  $\pm 10\%$ , 50/60Hz

### Load (Burden):

1.25 VA

### Output Contacts:

SPNO 10A @ 120V AC Resistive

### Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

### Response Times:

Operate: 11 ms

Release: 4 ms

### Temperature:

Operate:  $-20^{\circ}$  to  $60^{\circ}\text{C}$  ( $-4^{\circ}$  to  $140^{\circ}\text{F}$ )

Storage:  $-45^{\circ}$  to  $85^{\circ}\text{C}$  ( $-49^{\circ}$  to  $185^{\circ}\text{F}$ )

### Insulation Voltage:

2,000 volts

### LED Indicator:

Green ON when relay is energized & OFF when relay is de-energized.

### Mounting:

Both an integral spring mating clip and the appropriate 8 pin socket are included with the plug-in relay.

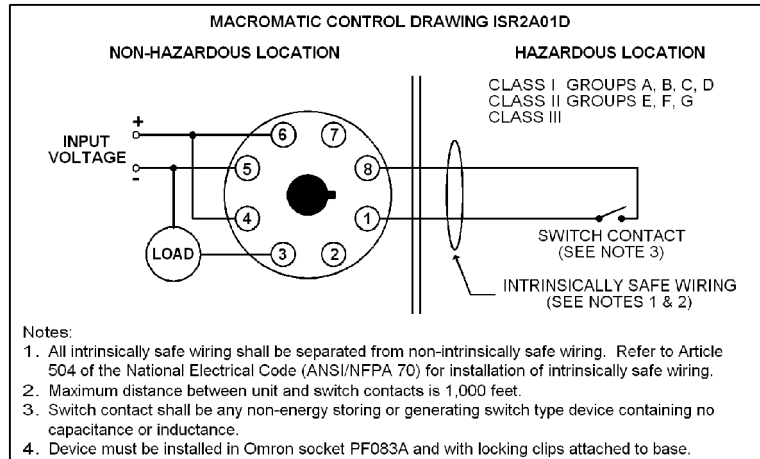
### Approvals:



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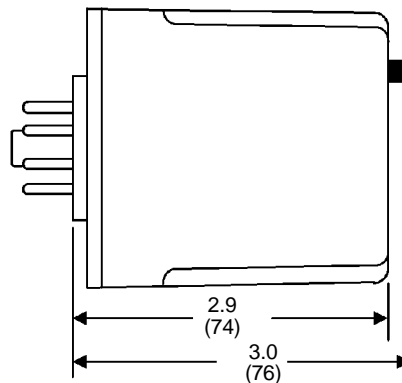
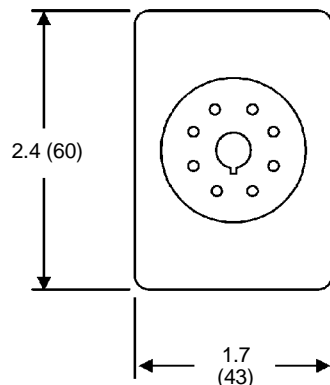
### UL Control Drawing ISR2A01D



### Notes:

1. All intrinsically safe wiring shall be separated from non-intrinsically safe wiring. Refer to Article 504 of the National Electrical Code (ANSI/NFPA 70) for installation of intrinsically safe wiring.
2. Maximum distance between unit and switch contacts is 1,000 feet.
3. Switch contact shall be any non-energy storing or generating switch type device containing no capacitance or inductance.
4. Device must be installed in Omron socket PF083A and with locking clips attached to base.

## Dimensions



All Dimensions in Inches (Millimeters)