

# Macromatic Intrinsically Safe Relays



**ISDUR4**



**ISEUR1**

## ISD Series

The ISD Series of Intrinsically Safe Relays provide a safe and reliable method to control up to four loads (motor starters, relays, etc.) with up to four input devices (switches, sensors, etc.) located in a hazardous area. These products are approved for use in Class I Groups A, B, C, D, Class II Groups E, F, G, and Class III Hazardous Locations (Zones 0 & 1 in Canada). The ISD Series relay must be mounted in a safe area.

The ISD Series relays utilize a compact 60mm wide enclosure that can be both mounted on 35mm DIN rail or panel-mounted with two screws. Terminals for the input devices from the hazardous area are on the bottom of the unit for easy access in the enclosure to incoming wiring from the hazardous area. Pluggable terminal blocks on both the input and output sides allow for easy initial wiring of the unit as well as replacement without having to remove any wires.

Each input has two terminals, which eliminates the need to mount a separate terminal block to connect multiple incoming COM wires. Each output relay has two terminals for isolation from the others, allowing outputs to be at different voltages, i.e., contactor coils at 120VAC and an alarm circuit at 24VDC. A universal input voltage of 102–132 VAC & 10–125 VDC covers a variety of applications with one device.

### Operation

Each ISD Series product consists of 4 intrinsically safe inputs and 4 corresponding electromechanical relay outputs. With input voltage applied, the V LED will be ON (GREEN) to indicate power is applied. When the input device is closed, the input LED is ON (GREEN). When the output relay is energized, the output LED is ON (ORANGE).

These products offer four operating configurations to meet a wide variety of applications. Each configuration is user-selectable using two DIP-switches easily accessible and clearly marked on the top of the product.

## ISE Series

The ISE Series of Intrinsically Safe Relays provide a safe and reliable method to control a single load (motor starters, relays, etc.) with a single input device (switches, sensors, etc.) located in a hazardous area. These products are approved for use in Class I Groups A, B, C, D; Class II Groups E, F, G, and Class III Hazardous Locations (Zones 0 & 1 in Canada). The ISE Series relay must be mounted in a safe area.

The ISE Series relays utilize a compact 17.5 mm wide enclosure that can be both mounted on 35mm DIN rail or panel-mounted with two screws. Hazardous terminals are on the bottom of the unit for easy access in the enclosure to incoming wiring from the hazardous area and are clearly marked.

### Standard Operation

Each ISE Series relay consists of an intrinsically safe input and a corresponding electromechanical relay output. There is one bi-color LED for status indication. With input voltage applied, the LED will be ON (Green) to indicate power is applied.

When the input device from the hazardous area is closed, the output relay is energized and the LED is ON (Orange). When the input device opens, the output relay will de-energize and the LED will be ON (Green).



ISDUR4 DIP-Switch Settings					
DIP-Switch	Setting	Description	DIP-Switch	Setting	Description
Delay	0 S	The output relay will have an immediate change in status in response to the input device closing or opening.	Logic	STD	When the input device in the hazardous area is closed, the corresponding output relay is energized. When the input device opens, the corresponding output relay will de-energize.
	2 S	The output relay will delay 2 seconds before a change of status in response to the input device closing or opening.		INV	When the input device in the hazardous area is open, the corresponding output relay is energized. When the input device closes, the corresponding output relay will de-energize.

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## Features

### ISD

- Approved for use in Class I, Class II, and Class III Hazardous Locations (Zones 0 & 1 in Canada)
- 4-Channel
- Isolated input terminals
- Isolated 5A relay outputs
- Load burden 5VA
- Pluggable terminals offer easy installation & replacement
- Universal input voltage, 10–125 VDC & 102–132 VAC, 50/60 Hz
- Compact 60mm wide enclosure for both DIN-rail or panel mount
- Instantaneous & delayed response times
- LED status indicator

### ISE

- Approved for use in Class I, Class II, and Class III Hazardous Locations (Zones 0 & 1 in Canada)
- 1-Channel
- 5A relay output
- Universal input voltage of 102–132 VAC & 10–125 VDC
- Compact 17.5 mm wide enclosure for both DIN-rail or panel-mount
- LED status indicator

### Agency Approvals

- cULus, UL913 8th Edition
- CE



Intrinsically Safe Relays		
Part Number	Description	Drawing Links
<a href="#">ISDUR4</a>	Macromatic intrinsically safe relay, 35mm DIN rail mount, finger-safe, Discrete Input: 4-point, 10 VDC input voltage, 102-132 VAC or 10-125 VDC coil voltage, Discrete Output: 4-point, relay, 4PST, 5A contact rating, N.O., LED indicator(s).	<a href="#">PDF</a>
<a href="#">ISEUR1</a>	Macromatic intrinsically safe relay, 35mm DIN rail mount, finger-safe, Discrete Input: 1-point, 10 VDC input voltage, 102-132 VAC or 10-125 VDC coil voltage, Discrete Output: 1-point, relay, SPST, 5A contact rating, N.O., LED indicator(s).	<a href="#">PDF</a>

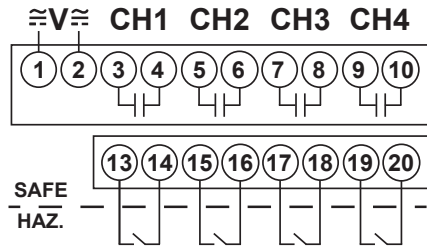
Specifications		
Part Number	ISDUR4	ISEUR1
<b>Input Voltage</b>	102-132 VAC or 10-125 VDC@ (50/60 Hz)	
<b>Input Switch Open Circuit Voltage:</b>	10VDC	
<b>Output Contacts</b>	SPST-N.O. (Form A): 3A Resistive @ 125VAC @ 60°C [140°F] 30VDC resistive, Pilot Duty Rating D300	SPST-N.O. (Form A): 3A resistive @ 125VAC @ 60°C [140°F] 30VDC resistive, Pilot Duty Rating D300
	SPST-N.O. (Form A): 5A resistive @ 125VAC @ 40°C (104°F) 30VDC resistive, Pilot Duty Rating D300	
<b>Life (Resistive Load)</b>	Mechanical: 5,000,000 operations; Electrical - Resistive: 50,000 operations	
<b>Response Times</b>	< 50ms (DIP Switch set to "0S") Fixed 2 Seconds (DIP Switch set to "2S")	< 50ms
<b>Power Consumption</b>	5VA Maximum	2VA Maximum
<b>Temperature</b>	Operation: -28 to 60°C [-18.4 to 140°F] Storage: -55 to 85°C [-67 to 185°F]	
<b>Mounting</b>	35mm DIN-rail or panel-mounted	
<b>Wiring</b>	One 14-24 AWG Conductor or Two 16 or 18 AWG Conductors	
<b>Insulation Voltage</b>	1500VAC between coil & contacts 750VAC between open contacts 1500VAC between contacts of different output channels 1500VAC between hazardous and safe circuits	1500VAC between coil & contacts 750VAC between open contacts 1500VAC between hazardous and safe circuits
<b>Indicator LED</b>	V: ON (Green); Inputs: ON (Green); Outputs: ON (Orange)	Standard Operation, ON (Green) - Input voltage; ON (Orange) - Input closed and relay energized
<b>Weight (lb)</b>	0.46	0.18
<b>Approvals</b>	cULus, (UL913 8th Edition), CE	

\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

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## Wiring Diagrams

ISDUR4



ISEUR1

