

# 4-CHANNEL INTRINSICALLY SAFE RELAYS

## ISD SERIES



- ◆ 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
- ◆ Pluggable terminals offer easy installation & replacement
- ◆ Universal input voltage of 102-132V AC & 10-125V DC
- ◆ Compact 60mm wide enclosure for both DIN-rail or panel-mount
- ◆ Standard & inverse logic
- ◆ Instantaneous & delayed response times
- ◆ LED status indicator



Better. By Design.

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The ISD Series of Intrinsic 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 safe area, following Macromatic Control Drawing Number ISD1A04.

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 120V AC and an alarm circuit at 24V DC. A universal input voltage of 102-132V AC & 10-125V DC 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. Each setting will apply to all channels:



### Standard Logic (DIP Switch set to "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.

### Inverse Logic (DIP Switch set to "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.

### No Time Delay (DIP Switch set to "0 S"):

The output relay will have an immediate change in status in response to the input device closing or opening.

### Fixed 2 Second Delay (DIP Switch set to "2 S"):

The output relay will delay 2 seconds before a change of status in response to the input device closing or opening.

INPUT VOLTAGE	NUMBER OF CHANNELS	CATALOG NUMBER	WIRING
102-132V AC (50/60Hz) & 10-125V DC	4	ISDUR4	<p style="text-align: center;"><b>DIAGRAM 814</b></p>

INTRINSICALLY SAFE RELAYS | DIN RAIL

# 4-CHANNEL INTRINSICALLY SAFE RELAYS

## ISD SERIES

### APPLICATION DATA

**Input Voltage:** 102-132V AC (50/60Hz.) & 10-125V DC

**Load (Burden):** 5VA Maximum

**Input Switch Open Circuit Voltage:** 10V DC

**Output Contacts:**

SPST-NO (Form A) 3A Resistive @ 125V AC @60°C & 30V DC Resistive, Pilot Duty Rating D300

SPST-NO (Form A) 5A Resistive @ 125V AC @40°C & 30V DC Resistive, Pilot Duty Rating D300

**Life:** Electrical: 50,000 Closures @ Full Load AC  
Mechanical: 5 Million Closures @ No Load

**Response Times:**

Standard (DIP Switch set to "0S"): < 50ms  
Delay (DIP Switch set to "2S"): Fixed 2 Seconds

**Temperature:**

Operating: -28° to +60° C (-18° F to +140° F)  
Storage: -55° to +85° C (-67° to 185° F)

**LED Indication:**

V: ON (Green); Inputs: ON (Green); Outputs: ON (Orange)

**Insulation Voltage:**

1500 V AC between coil & contacts  
750 V AC between open contacts  
1500 V AC between contacts of different output channels  
1500 V AC between hazardous and safe circuits

**Wire Sizes:**

One #14-24 AWG Conductor or  
Two #16 or 18 AWG Conductors

**Mounting:** Mounts on 35mm DIN-rail or panel-mounted with two #8 screws when DIN-rail clips are fully extended from under the enclosure.

**Control Drawing:** Visit [www.macromatic.com/isd1a04](http://www.macromatic.com/isd1a04) to view Macromatic Control Drawing ISD1A04.

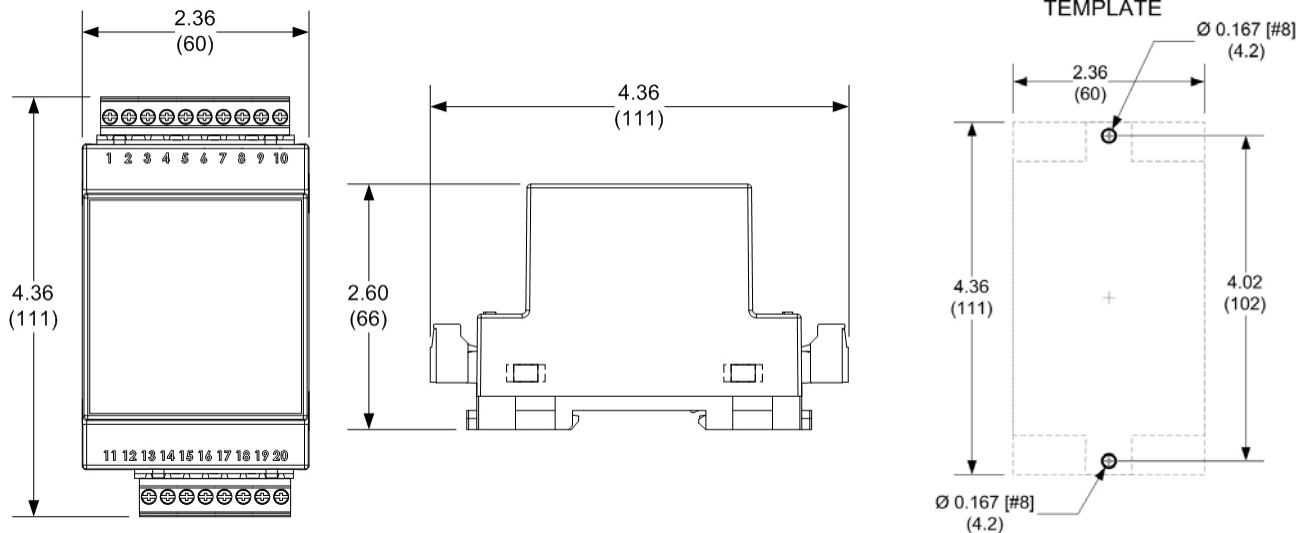
**Approvals:**



UL913 8th Edition  
E318075



### DIMENSIONS



All Dimensions in  
Inches (Millimeters)