IRM4 - Interposing Relay Module

Installation and Operation Instructions

Overview

The IRM4 - Interposing Relay Module has four independent channels that convert a relay output to a contact output or a voltage output. The relay output is energized by either an external power source or power sourced on the IRM4 Module. Jumpers are used to set the mode for each individual channel and the I/O for each channel via 4-pole 3.5mm connectors.

The unit is mounted in a BP2, BP4, BP8 or BP4V Backplane with power provided by the Backplane The Backplane is typically powered by a PS17, PS18 or PS19 Power Supply.

Each relay on the IRM4 Module has a 24VDC coil switching Form C contacts. A SPDT switch allows for configurable output contacts for each output. LEDs provide power status of the unit as well as the state of each individual channel.

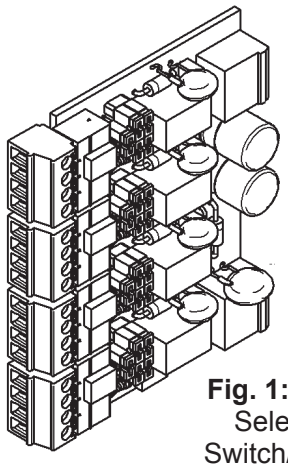

Fig. 1: IRM4 Selector Switch/Alarm Counter Module

Mounting

The IRM4 Module plugs into either a BP4 or BP8 Backplane as shown in Fig 2.

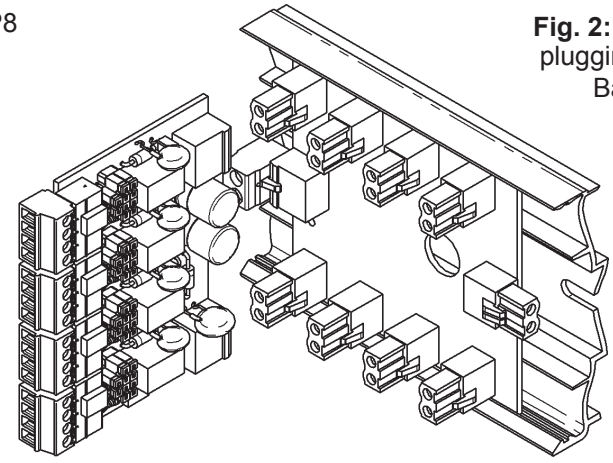

Fig. 2: IRM4 Module plugging into a BP4 Backplane

Specifications

Electrical	**MIN**	**TYP**	**MAX**
Backplane Input Voltage	19.2V		36V
Individual Circuit Leg 24VDC – PTC limited			.5A

Coil Ratings	**MIN**	**TYP**	**MAX**
Coil Voltage			36V at 23°C
Pick Up Voltage	19.2V		
Must Release			2.4 VDC
Coil Power		0.150 W	
Coil Resistance		3,840Ω ±10%	

Contact Ratings (accounting for IRM4 circuitry)	**MIN**	**TYP**	**MAX**
Boosted Mode			0.3A @ 24VDC, Resistive
Isolated or Contact Only Mode			0.5A @ 24VDC, 120 VAC, Resistive

Specifications subject to change without notice.

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Termination

Three valid jumper settings exist, Contact Output Only, Isolated Contact Input and Boosted Voltage Output. Each channel has an independent jumper setting at the 10 pin header. See setup options for more details. The jumper settings are also screened on the back side of the PCB.

Contact Output Only Mode
In Contact Output Only Mode, the input connects to the relay coil with the output connected to one set of contacts through the switch, allowing for NO or NC operation. The on-board relay coil is energized via an external power source, such as from the controller.

Use this when a controller with 24VDC descrete output needs to provide a dry contact input to another controller.

Isolated Contact Input Mode
In Isolated Contact Input Mode, the input is an external contact connected to the IRM4 sourced power, which when closed, energizes the coil. Output is a dry contact the same as in the Contact Only mode.

Use this when your controller must monitor a dry contact in a noisy environment or location susceptible to to lightning induced surges.

Boosted Voltage Output Mode
In Boosted Voltage Output Mode, the on-board relay is energized from an external power source (similar to the Contact Only mode). The output is 24V nominal sourced from the IRM4 through the relay contacts and is configured as NO or NC via the selector switch.

Use this in the same situation as Isolated Contact Input Mode or where a controlled device requires more current than the controller can provide.

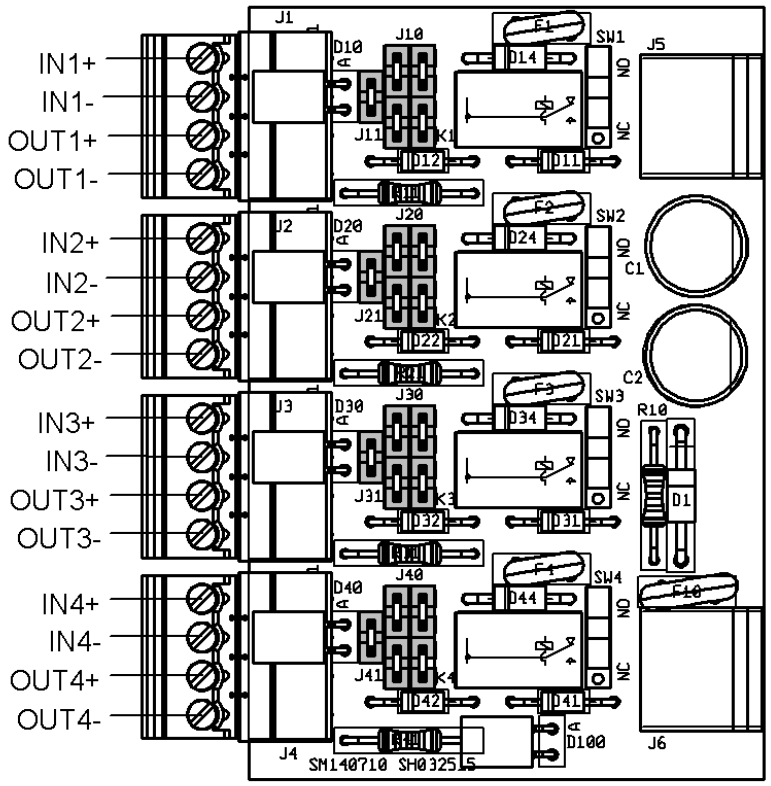
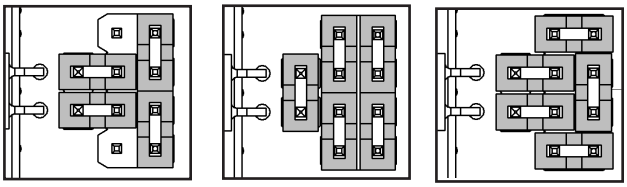


Fig. 3: IRM4 Module component locator



Contact Only **Isolated Mode** **Boosted Mode**

FIELD WIRING

CONN.	FUNCTION
J5	Ground (COMMON)
J6	24V Nominal
J1-J4	Dependent on Jumper Configs (See right)

J1-J4	Contact Only	Isolated	Boosted
Pin 1	Coil +	+24V	Coil +
Pin 2	Coil -	Coil +	Coil -
Pin 3	COM	COM	Switched Sourced 24VDC
Pin 4	Contact	Contact	24V Return to Circuit Ground

LED Function

The Green LED (D100) is on when power is applied to the IRM4. The Red LEDs (D10, D20, D30, D40) are on when the on board relay is energized for each corresponding channel.

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Diagnostics

PROBLEMS	**SOLUTIONS**
Green Power LED doesn't light	- Check to see if the IRM4 Module is firmly inserted into the BP - Backplane - Check the power cable to the BP - Backplane - Check the power to the PS17 (or other external power supply that is supplying power to the BP - Backplane) to see that it is supplying power
Red LEDs do not light	- Check jumper configurations to see if it matches the diagrams above

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