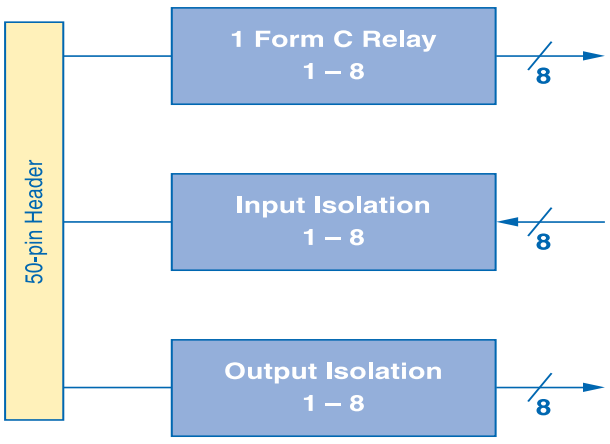
ISM-TRM-COMBO

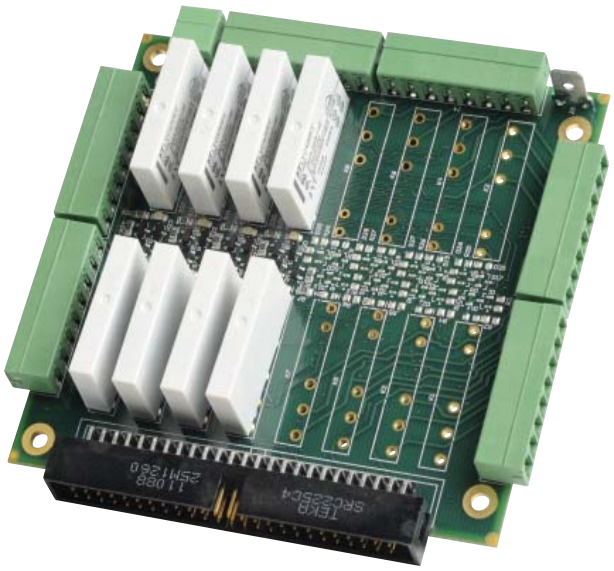
Octal Isolated In/Out/Relay Signal Conditioning Module

Features

- Small form factor industrial I/O termination board
- Eight SPDT Form C medium current relays with contacts rated up to 6A @ 250VAC/24VDC
- LEDs provide visual status of each relay
- Eight optically isolated outputs with Open-Collector Darlington drivers that sink 500mA from 5 to 30 VDC
- Eight optically isolated and debounced inputs with a voltage range from 5 to 30 volts AC or DC
- Custom configurations available for OEMs
- Convenient and reliable, pluggable quick disconnect terminal block connectors for field wiring
- Ribbon cabling directly compatible with WinSystems' single board computers and individual I/O modules
- +5V power supplied through interface cable
- Small 3.6 x 3.8 inches (90 x 96mm) size allows the module to be put in a stack or to standalone
- Operates from -40°C to +85°C
- RoHS compliant board



ISM-TRM-COMBO Block Diagram-



Product Description

WinSystems' ISM-TRM-COMBO is a signal conditioning board that provides eight independent SPDT relays, eight isolated outputs, and eight isolated inputs for applications requiring medium current capacity plus I/O isolation between an embedded computer and monitoring/control points.

Relays - The contacts can handle 6A @ 250VAC/24VDC. There are two signal lines, Normally Open (NO) and Normally Closed (NC) plus a Common associated for each relay. A nominal 5 volt DC signal activates the relay.

There is a red LED wired to each relay which will illuminate when the device is activated. This provides a visual status for each channel.

Isolated Output - Each output line is optically isolated from the digital I/O controller interface circuit. The isolation voltage rating between the input and output of the photo coupler device exceeds 2500V. Each output has a NPN Darlington transistor pair with an integral clamp diode for switching inductive loads and transient suppression. Each output line is capable of sinking 500mA of current required by most relays. The collector-emitter voltage can withstand up to 30 volts.

Isolated Power - There is a separate 2-pin pluggable connector block on the board to allow voltage to be used on

ISM-TRM-COMBO - Octal Isolated In/Out/Relay Module

the field wiring side of the isolation circuits. Both ground and power are isolated. Power can be from 5 to 30 volts.

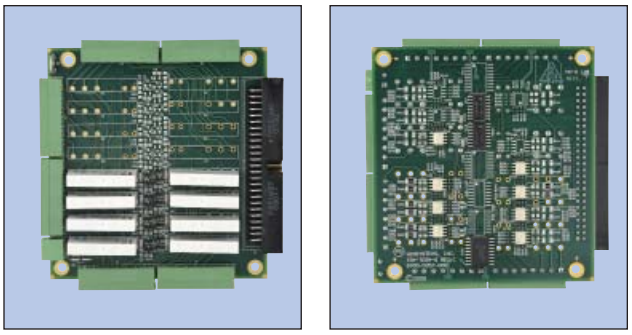
Isolated Input - Each isolated input pair is wired to a photo-coupler. Both the anode and cathode of the photocoupler LED are wired to a terminal block for jumper selection by the user. This gives the user the configuration flexibility of driving from either an active high or active low signal. The inputs can be driven by a source from 5 to 30 volts. Each input line is optically isolated from others and from the computer interface circuits. The isolation voltage rating between the input and output of the photo coupler device exceeds 2500V.

After the optical isolation circuit, each of the input lines has a MC14490 contact bounce eliminator. Its purpose is the elimination of extraneous level changes that result when interfacing with mechanical contacts from devices such as switches or relays. The circuit takes an input signal from a bouncing contact and generates a clean digital signal four clock periods after the input has stabilized. This results in about a 60 microsecond delay for debouncing. This circuit will remove bounce on both the "make" and "break" of a contact closure. It will pass up to a 34 KHz signal. Then the signal goes to a 50-pin header that allows easy connection to a single board computer or I/O board.

Interface Cables - The ISM-TRM-COMBO board is connected with a 50-pin IDC standard 0.100-inch keyed ribbon cable to the digital I/O controller. WinSystems offers ribbon cables that connect directly for our SBCs and I/O modules to the ISM-TRM-xxx cards. Their lengths and part numbers are listed on the website.

Board Mounting - The board measure 3.6 x 3.8 inches (90 x 96mm) and has the same mounting hole pattern as PC/104 modules. It is referred to as an Industry Standard Module (http://www.sff-sig.org/ism_spec_v10.pdf). An ISM-TRM-COMBO can be placed on the top or bottom of a stack, but it does not have the PC/104 connector and therefore does not pass through power, data, or control signals.

Custom Configurations - Other OEM configurations are available. Please contact a factory application engineer with your application-specific requirements, I/O requirements, and quantity needed.



Front and Back Picture of ISM-TRM-COMBO

Technical Specifications

Electrical

Eight SPDT Form C Relays

Coil voltage	5V nominal, 11V maximum
Coil resistance	147Ω (±10%)
Contact rating	6A @ 250VAC/24VDC
Contact type	$AgSnO_2$
Dielectric strength	4000 VAC

Eight Isolated Inputs

Input voltage	5 – 30V
Isolation	2500 VAC
Input impedance	3.3K ohms
Debounced input	Yes

Eight Isolated Output

Output voltage	Up to 50V @ 500 mA
Isolation	2500 V

Power Requirements

Vcc = +5V ±5% @ 250 mA typical

Environmental

Operational from -40°C to +85°C
Non-condensing relative humidity 5% to 95%

Mechanical

Dimensions	3.6 x 3.8 inches (90 x 96mm)
Weight	3.3 oz. (92 gm)

Connectors

Field wiring	3.5mm pluggable terminal headers
I/O controller	50-pin 0.100 inch header

Ordering Information

ISM-TRM-COMBO	Eight relays, eight isolated input, and eight isolated output channels

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