

# eI/O

## Embedded I/O Modules

### OVERVIEW

eI/O M-Series embedded I/O products offer cost-effective modular expansion for a wide variety of control and monitoring applications. Unlike traditional I/O products, eI/O M-Series modules achieve I/O expansion in groups of eight inputs or outputs per module. The user can mix and match the modules as appropriate to create a customized embedded I/O architecture.

Interface to the module chain is accomplished with digital I/O via a standard 50-pin ribbon connector contained on the M200 baseboard. Individual eI/O M-Series I/O modules are added to the M200 or other eI/O M-Series modules via a rugged 50-pin connector. Up to four eI/O M-Series modules can be used together, allowing 32 total I/O points type-selectable in 8-bit increments.

### FEATURES

- Low-cost industrial I/O
- Modular format allows selection of I/O in 8-bit increments
- Mix and match modules for cost-effectiveness
- Control from industry-standard 50-pin cable (PB24/32)
- No motherboard/backplane needed; boards connect through rugged 50-pin interconnects
- Removable screw terminals for field I/O connections
- Eurotray (DIN rail compatible) or direct mounting

### eI/O M-SERIES I/O MODULES

eI/O M-Series modules are available for a variety of I/O requirements including Reed relay and Form C relay outputs, optically isolated input, optically isolated output, and quad solid state relay (QSSR) input and output modules. For easy connection, field wiring is connected to each module via removable screw terminal blocks compatible with 14-22 AWG wiring. Flexible mounting configurations include 107mm Eurotray (DIN rail compatible) and direct mounting.

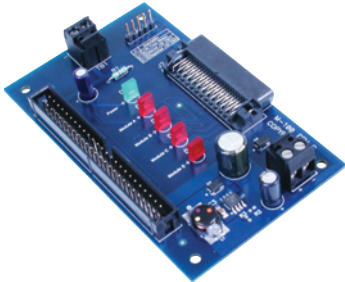
### PROTOTYPE/CUSTOM I/O MODULES

For ease of custom development, a prototyping board is available. Add your custom circuitry and interface to the digital control bits via the standard 50-pin connector. Sealevel is available for design and production of custom eI/O M-Series modules. Call our Application Engineers for assistance.

## MODULES

### M200 Baseboard Module

The M200 baseboard module connects eI/O family interface modules to digital control boards (e.g. Sealevel's PIO series of boards and USB adapters) via a 50-pin ribbon cable. This cabling is backward compatible with PB-24/32 connections. System power can be input from the ribbon cable, an external 5VDC input, or an external 9VDC to 30VDC source using the on-board regulator. On-board LEDs indicate input power status and connection of up to four eI/O modules.

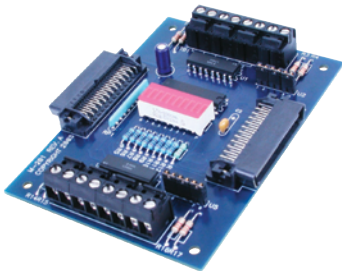


## TECHNICAL SPECIFICATIONS

Power:	5V @ 75mA Selectable: 5VDC through ribbon cable, 5VDC via terminal block, or 9VDC to 30VDC using on-board regulator (regulator supplies up to 1A max.)
Interface:	50-pin header connector compatible with industry standard PB-24/32
Indicators:	Green LED indicating board is powered; 4 red LED's indicating connection of up to 4 eI/O modules
Size:	2.50" x 4.21"

### M240 Opto-isolated Input Module

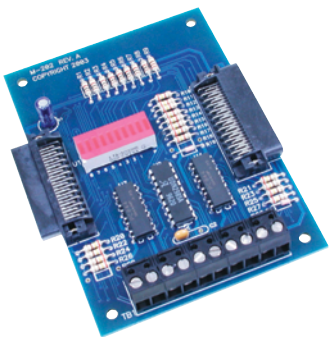
M240 modules provide 8 channels of optically isolated inputs for monitoring a variety of real-world devices. Inputs can range from 12-24VAC/DC and field wiring is connected via two removable 8-pin terminal blocks. For convenience connecting ground signals, "commoning" jumpers are provided that tie each input's ground connection to common. Status of each input (on/off) is displayed via on-board LEDs.



Power:	5V @ 115mA
Input(max):	24VDC @ 7mA (sinking)
Isolation:	500VDC
Size:	3.00" x 4.21"

### M250 Opto-isolated Output Module, Sinking

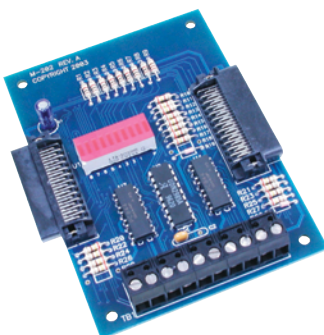
The M250 is an optically-isolated open-collector output module designed to control up to 24VDC devices. 500VDC isolation protects electronics from over-voltage damage. Connection to field wiring is accomplished via a 10-pin removable terminal block. Output state of each bit is displayed via on-board LEDs. Requires power supplied to field terminal block from external supply such as the optional PS101.



Power:	5V @ 130mA
Output Device:	Darlington array, open-collector
Current:	500mA (sinking)
Isolation:	500VDC
Size:	3.00" x 4.21"

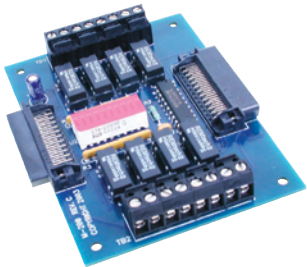
### M251 Opto-isolated Output Module, Sourcing

The M251 is an optically-isolated emitter-follower output module designed to control up to 24VDC devices. 500VDC isolation protects electronics from over-voltage damage. Connection to field wiring is accomplished via a 10-pin removable terminal block. Output state of each bit is displayed via on-board LEDs. Requires power supplied to field terminal block from external supply such as the optional PS101.



Power:	5V @ 150mA
Output Device:	Source driver, emitter-follower
Current:	250mA (sourcing)
Isolation:	500VDC
Size:	3.00" x 4.21"

## MODULES

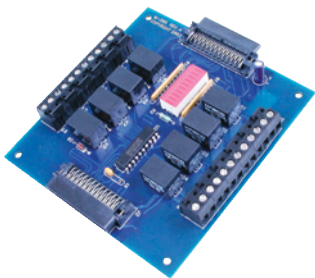


### M260 Reed Relay Module

The M260 provides 8 SPST (Form A) dry contact Reed relay outputs. Reed relays provide high quality, long life switch closures and are well suited for low current applications. Field wiring connections are made to the module via two removable 8-pin screw terminal blocks. On-board LEDs indicate status of each relay (open/closed).

## TECHNICAL SPECIFICATIONS

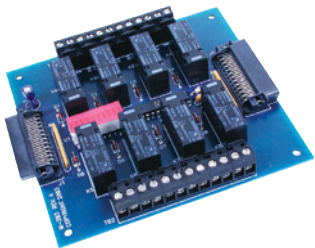
Power:	5V @ 175mA
Contact Voltage:	100VDC max.
Contact Current:	500mA @ 100VDC max.
Contact Resistance:	0.1 Ohms
Rated Life:	100 million closures @ max. load
Contact Speed:	0.5 ms operate, 0.2 ms release, 0.5 ms bounce
Size:	3.00" x 4.21"



### M270 Form C Relay Module, 2A

The M270 supplies 8 SPDT (Form C) dry contact relays that can be wired for normally-open or normally-closed operation at up to 2 amps. Field wiring is connected via two 12-pin removable terminal blocks. On-board LEDs indicate status of each relay (open/closed).

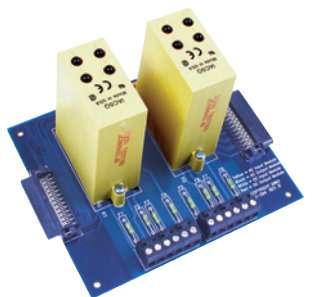
Power:	5V @ 400mA
Contact Voltage:	125VDC/250VAC
Contact Current:	2A @ 30VDC/2A @ 250VAC max.
Contact Resistance:	0.1 Ohms
Rated Life:	100 million closures @ max. load
Contact Speed:	0.2 ms operate, 1 ms release, 2 ms bounce
Size:	4.50" x 4.21"



### M271 Form C Relay Module, 8A

The M271 supplies 8 SPDT (Form C) dry contact relays that can be wired for normally-open or normally-closed operation at up to 8 amps. Field wiring is connected via two 12-pin removable terminal blocks. On-board LEDs indicate status of each relay (open/closed).

Power:	5V @ 425mA
Contact Voltage:	125VDC/250VAC
Contact Current:	5A @ 30VDC/8A @ 250VAC max.
Contact Resistance:	0.1 Ohms
Rated Life:	100K closures @ max. load
Contact Speed:	0.2 ms operate, 1 ms release, 2 ms bounce
Size:	4.50" x 4.21"



### M280 Quad SSR Relay Module

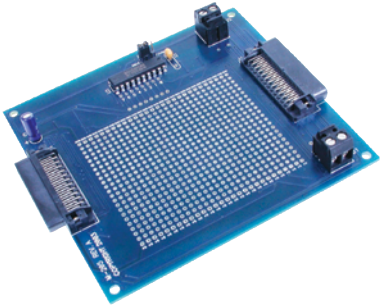
The M280 module allows easy interface to one or two industry standard quad solid state relays (QSSR). The module can be configured as 8 inputs or 8 outputs and will accept AC and DC QSSRs. Input modules have built-in filtering to provide clean signals to the control system, and include transient protection circuitry. Field wiring connection is made via two 6-pin removable terminal blocks. Each I/O channel is protected by a 5A fuse which is socketed for easy replacement.

Power:	5V @ 150mA
Solid State Relay Modules:	IAC5Q - AC input up to 240V @ 2A OAC5Q - Control AC output up to 140V @ 3A IDC5Q - DC input up to 32V @ 29mA ODCQ - Control DC output up to 60V @ 3A
Isolation:	2500Vrms
Size:	4.50" x 4.21"

## MODULES

### M290 Prototype Module

Need a particular combination of I/O not found on our standard eI/O modules? The M290 prototyping board offers an easy solution. The prototyping area is on .10" centers and offers 26 rows and 28 columns. Data bits D0 through D7 are buffered by a 74HCT245. A jumper allows the direction of the '245 buffer to be configured as either input or output. Two 2-pin removable terminal blocks are provided to connect field wiring to the module.



## TECHNICAL SPECIFICATIONS

Power:	5VDC @ 250mA provided Power and ground rails easily accessible
Prototyping Area:	26x28 rows/ columns, double- sided
Hole Spacing:	.10" centers
Thru-holes:	Full solder barrel
Size:	4.5" x 4.21"

## APPLICATION SUPPORT



\*QSSRs sold separately

### eI/O M-Series Starter Kit

Get your project off to a fast start with our eI/O M-Series starter kit. Each kit contains:

- M200 - Baseboard
- M240 - 8-channel optically-isolated input module
- M260 - 8-channel Reed relay output module
- M280 - Quad solid state relay module
- 8010 - 32-channel PCI bus digital I/O board
- CA167 - 40" ribbon cable
- Eurotray mounting track with DIN rail mounting
- SeaI/O and OPC software drivers included
- Industrial I/O Handbook



### PS101

The PS101 is a AC/DC DIN rail mount power supply that accepts 100-240VAC and outputs 24VDC at up to 600mA. The PS101 is recommended for supplying external power to the M250 and M251 optically-isolated input modules.



**TACTICAL**  
— SUPPLY PAKISTAN —