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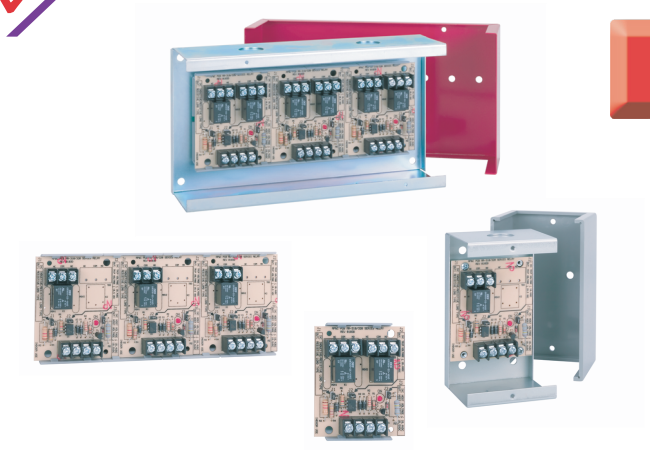
MR3



A sampling of mounting, enclosures and configurations shown above.

MR-310, 320 Series Relays

Low-Voltage, Low-Current TTL+ Relays

MR 300 Series Relays provide virtually endless options for low-voltage application interconnectability. This robust relay is available in SPDT or DPDT configurations. Available in enclosure, snap-track or spacer mounted versions and single or multi-unit assemblies. Enclosure configurations available with red or gray covers and provide 'energized on' LED viewing port(s). No special tools are required for installation. Industrial/commercial sized PCB. Code required

The MR3 utilizes all pre-qualified, reliable hi-grade U.L. recognized components. Trip circuitry is 100% opto-isolated for complete non-interference and protection. Easy reversible selectability for trip/host voltages, low and ultra-low current trip operation which allows proper matching of trip to type of load switched (no tools necessary). Both trip and host inputs are diode protected against accidental reversed polarity DC hook-up. These relays are polarized so that either or both may be supervised and/or utilize input voltage logic for complex multi-criteria operations. Both trip and host are universal for use with standard TTL, fire, security and building control voltages. All field wiring terminations are done with positive clamping-action captive screw commercial/industrial terminals (#12 to #22 AWG). The design provides for positive or negative trigger inputs, and an integral energized (on) red LED indicator. There is also zener diode protection across relay coil. Environmental temperature ratings are between 32°F to 120°F @ 93% RH non-condensing / freezing. The unit provides for use of two differently referenced power sources on trip and host inputs. The MR3 will not false trip on less than four volts and allows regulated and un-regulated power sources.

User-Selectable Operation Modes:

• **Super-low current dedicated** 24VDC trip mode allows for a variety of fire alarm driver type applications. • TTL level trip is "real world" useable for building control/relay/annunciator driver board applications.

• **Trip / host "bridged"** mode provides a 12-27.3VDC standard package for security and

CSFM & MEA Listings targeted for approval April 2004.
File numbers furnished upon request.

Options/Configurations:

- Available in SPDT or DPDT configurations
- Available in enclosure, snap-track or spacer mounted versions
- Available in single or multi-unit assemblies
- Track mount version allows for adhesive, single/dual screw or optional DIN/ "A" rail mounting
- Spacer configuration provides for screw or stud mounting
- Enclosure configurations available with red or gray covers

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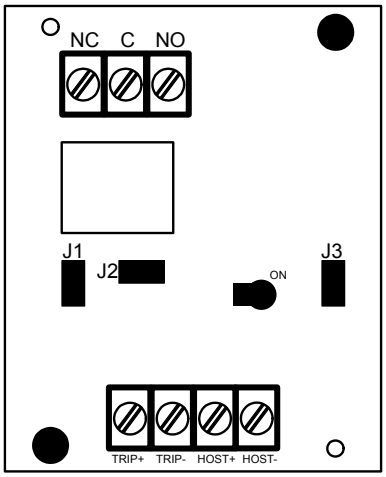
Installation Wiring

MR-310 SERIES

SPDT CONTACTS
RESISTIVE 10A @ 120 VAC
7A @ 24VDC/VAC
INDUCTIVE 0.35 PF(Power Factor)

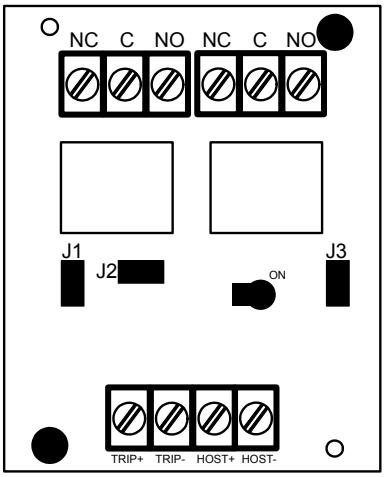


TRIP+ / TRIP- 5-27.3VDC @ 2.0-17mA (Min.-Max.)* Relay **Triggering** Power Input (Polarized)

HOST+ / HOST- 12-27.3VDC @ 36-46mA (Min.-Max.)* Relay **Operating** Power Input (Polarized)

MR-320 SERIES

DPDT CONTACTS
RESISTIVE 10A @ 120 VAC
7A @ 24VDC/VAC
INDUCTIVE 0.35 PF(Power Factor)



TRIP+ / TRIP- 5-27.3VDC @ 2.0 -17mA (Min.-Max.)* Relay **Triggering** Power Input (Polarized)

HOST+ / HOST- 12-27.3VDC @ 56-79mA (Min.-Max.)* Relay **Operating** Power Input (Polarized)

*Refer to application specific jumper configuration programming guide for precise current draw requirements. Relay is shipped with J1, J2 and J3 installed in OUT positions. You must perform all jumpers for the motor load type and special motors in your application to guarantee proper relay operation.

MR-310 and MR-320 SERIES JUMPER CONFIGURATIONS

MR-310 & MR-320 Operating Mode Examples

Application Configuration					Trip Input			Host Input			General Usage Example
									Current		
Modes (Application)	J1 (Load)	J2 (Trip)	J3 (Host)	Load Type	Inductive Breaking Power	Voltage	Current	Voltage	MR-310 (SPDT)	MR-320 (DPDT)	
"A" (LO trip - HI host)	In	In	Out	Any	Maximum	5 - 18.4VDC	3.2 - 17mA	18.5 - 27.3VDC	38 - 46mA	56 - 79mA	TTL/Security to Fire Alarm
"B" (LO trip - HI host)	Out	In	Out	Resistive	Moderate	5 - 18.4VDC	2.5 - 13mA	18.5 - 27.3VDC			
"C" (HI trip - LO host)	In	Out	In	Any	Maximum	18.5 - 27.3VDC	2.1 - 3.3mA	12 - 18.4VDC	36 - 40mA	69 - 73mA	Fire Alarm to Security
"D" (HI trip - LO host)	Out	Out	In	Resistive	Moderate	18.5 - 27.3VDC	2 - 3.2mA	12 - 18.4VDC			
"E" (LO trip - LO host)	In	In	In	Any	Maximum	5 - 18.4VDC	3.2 - 17mA	12 - 18.4VDC	36 - 40mA	69 - 73mA	TTL/Security to Security
"F" (LO trip - LO host)	Out	In	In	Resistive	Moderate	5 - 18.4VDC	2.5 - 13mA	12 - 18.4VDC			
"G" (HI trip - HI host)	In	Out	Out	Any	Maximum	18.5 - 27.3VDC	2.1 - 3.3mA	18.5 - 27.3VDC	38 - 46mA	56 - 79mA	Fire Alarm to Fire Alarm
"H" (HI trip - HI host As Shipped)	Out	Out	Out	Resistive	Moderate	18.5 - 27.3VDC	2 - 3.2mA	18.5 - 27.3VDC			

BRIDGED MODE

-To operate in bridged mode, connect jumpers from HOST+ to TRIP+ and from HOST- to TRIP-
-Only a single voltage input from 12-27.3VDC is required for relay operation (or nominal 24VDC as above)
-Jumper configurations as noted above may be used to tune relay operation

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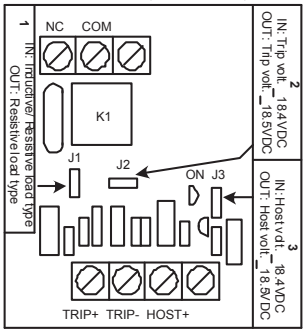
Configuration Examples

CAUTION: De-energize power prior to removing or installing jumpers and installation or service.

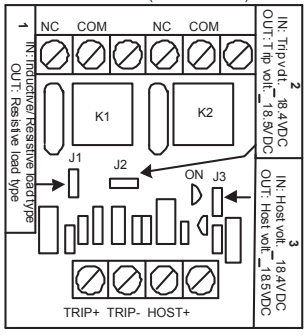
MR-310
SPDT Contacts
Resistive 10A @ 120 VAC
7A @ 24
Inductive 0.35 PF(Power Factor)



TRIP - 5-27.3VDC @ 2.0-17mA (Min.- Max.)* Relay **Triggering** Power Input (Polarized)

HOST - 12-27.3 VDC @ 36-46mA (Min.- Max.)* Relay **Operating** Power Input (Polarized)

MR-320
DPDT Contacts
Resistive 10A @ 120 VAC
7A @ 24
Inductive 0.35 PF(Power Factor)



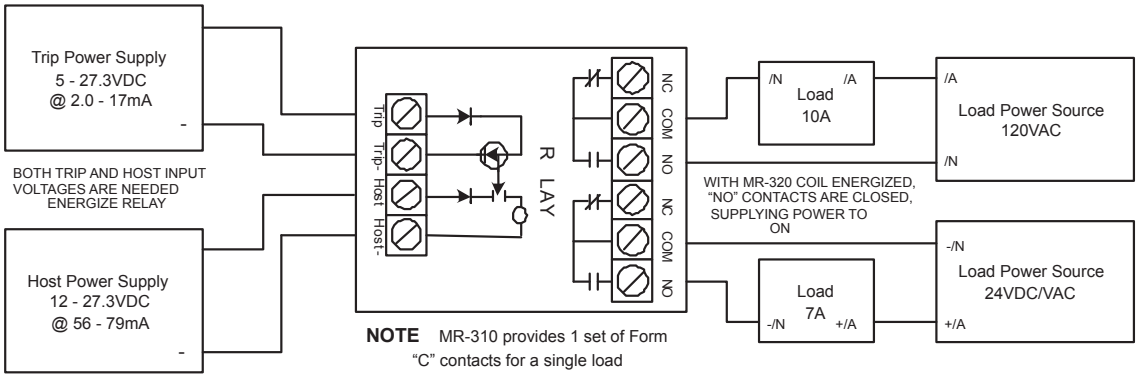
TRIP - 5-27.3VDC @ 2.0-17mA (Min.- Max.)* Relay **Triggering** Power Input (Polarized)

HOST - 12-27.3 VDC @ 56-79mA (Min.- Max.)* Relay **Operating** Power Input (Polarized)

*Refer to application specific jumper configuration programming guides for precise current draw requirements. Relay is shipped with J1, J2 and J3 installed in the "OUT" position. You must program all jumpers for the proper load type and specific voltages in your application to guarantee proper relay operation.

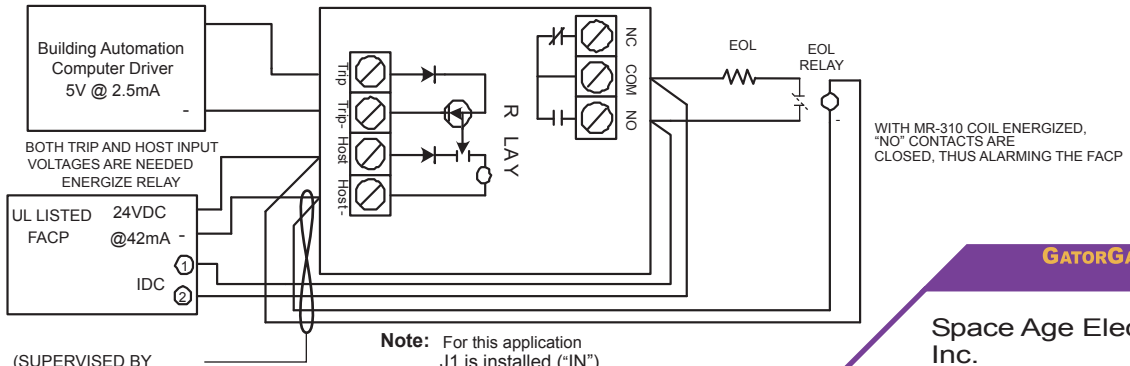
Application Examples

MR-320 Dual Contact Voltage Example
(Simultaneously switches 120VAC and 24VDC/VAC)



NOTE MR-310 provides 1 set of Form "C" contacts for a single load

MR-310 Typical TTL Driver Board to Fire Alarm System Example



Note: For this application
J1 is installed ("IN")
J2 is installed ("IN")
J3 is removed ("OUT")

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Product Specifications

/S = Spacer Mounted /T = Track Mounted
/C = Enclosure /R = Red Finish Enclosure Cover

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SAE PN#	MODULE POSITIONS	CONTACT CONFIGURATION PER POSITION	SPACER MOUNTED H X W X D	TRACK MOUNTED H X W X D	ENCLOSURE MOUNTED H X W X D	COVER MATERIAL	UL FILE* S3403
SSU-MR-311/S	1	SPDT	3.25"(83mm) 2.75"(70mm) 1.44"(36.7mm)				UOXX2 NMTR2 UUKL2 PAZX2 UEHX2
SSU-MR-321/S		DPDT					
SSU-MR-311/T		SPDT		3.40"(86.8 mm) 2.75"(70mm) 1.5"(38.1mm)			
SSU-MR-321/T		DPDT					
SSU-MR-311/C		SPDT			5.13"(131mm) 3.13"(80mm) 2.50"(64mm)	GREY ABS 94V-O PLASTIC	UOXX NMTR UUKL PAZX UEHX
SSU-MR-321/C		DPDT					
SSU-MR-311/C/R		SPDT				RED ABS 94V-O PLASTIC	
SSU-MR-321/C/R		DPDT					
SSU-MR-312/S	2	SPDT	3.25"(83mm) 5.5"(140mm) 1.44"(36.7mm)				UOXX2 NMTR2 UUKL2 PAZX2 UEHX2
SSU-MR-322/S		DPDT					
SSU-MR-312/T		SPDT		3.40"(86.8mm) 6.0"(152.4mm) 1.5"(38.1mm)			
SSU-MR-322/T		DPDT					
SSU-MR-312/C		SPDT			5.13"(131mm) 9.5"(241.3mm) 2.50"(64mm)	PLATED 18GA CRS	UOXX NMTR UUKL PAZX UEHX
SSU-MR-322/C		DPDT					
SSU-MR-312/C/R		SPDT				RED 18GA CRS	
SSU-MR-322/C/R		DPDT					
SSU-MR-313/S	3	SPDT	3.25"(83mm) 8.25"(210mm) 1.44"(36.7mm)				UOXX2 NMTR2 UUKL2 PAZX2 UEHX2
SSU-MR-323/S		DPDT					
SSU-MR-313/T		SPDT		3.40"(86.8mm) 8.25"(210mm) 1.5"(38.1mm)			
SSU-MR-323/T		DPDT					
SSU-MR-313/C		SPDT			5.13"(131mm) 9.5"(241.3mm) 2.50"(64mm)	PLATED 18GA CRS	UOXX NMTR UUKL PAZX UEHX
SSU-MR-323/C		DPDT					
SSU-MR-313/C/R		SPDT				RED 18GA CRS	
SSU-MR-323/C/R		DPDT					

VOLTAGE REQUIREMENTS:	Host: 12 - 27.3VDC Trip: 5 - 27.3VDC
POLARIZED INPUTS:	Yes,on both trip optoisolator and host coil inputs
ENERGIZED INDICATOR:	One red LED per module position
CURRENT REQUIREMENTS:	Refer to Jumper Configuration Chart
CONTACT RATINGS:	Resistive: 10A @120VAC; 7A @ 24VDC/VAC Inductive 0.35 PF (Power Factor)
CONTACT CONSTRUCTION:	Dry Form "C"
AMBIENT TEMPERATURE:	32ºF to 120ºF (0ºC to 49ºC) @ 93% RH (@32ºC), NON-condensing/freezing
WIRING:	#12 to #22 AWG terminals
"/S" VERSIONS:	Aluminum spacers provided with #8 X 7/8" self tapping sheet metal screws
"/T" VERSIONS:	3.5" wide, low profile plastic snap track provided with mounting screws
"/C" VERSIONS:	Backbox: 18ga CRS, plated with 1/2" conduit knockouts top and bottom

*UOXX (UL864) = Control Unit Accessories, System; 2 = Component
*UUKL (UL864) = Smoke Control System Equipment, System; 2 = Component
*NMTR (UL508) = Miscellaneous Apparatus, System; 2 = Component
*PAZX (UL916) = Energy Management Equipment, System; 2 = Component
*UEHX (UL2017) = General Purpose Signaling Devices and Systems, System; 2 = Component

LISTINGS AND APPROVALS: MEA: File 73-92-E Vol.29

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