

# MR-310 SERIES MR-320 SERIES

LOW VOLTAGE, LOW CURRENT  
OPTO-ISOLATED RELAY INSTALLATION GUIDE

## PRODUCT SPECIFICATIONS

VOLTAGE REQUIREMENTS:	<b>TRIP:</b> 5 - 27.3VDC	<b>HOST:</b> 12 - 27.3VDC
POLARIZED INPUT(S):	Yes, on both trip optoisolator and host coil inputs	
ENERGIZED INDICATOR:	One red LED per module position	
CONTACT RATINGS:	Resistive load: 10A @ 120VAC, 7A @ 24VDC/VAC; Inductive load: 0.35 PF (Power Factor)	
CONTACT CONSTRUCTION:	Dry form "C"	
AMBIENT TEMPERATURE:	32°F to 120°F (0°C to 49°C) @ 93% RH (@ 32°C), Non-Condensing / Non-Freezing	
WIRING:	Solid or stranded: #14 to #22 AWG terminals	
"/T" VERSIONS:	3.5" wide, low profile snap track provided with mounting screws	
"/S" VERSIONS:	Aluminum spacers provided with #8 X 7/8" mounting screws	
"/C" VERSIONS:	Backbox: 18ga CRS, plated with 1/2" conduit knockouts top and bottom	
	Cover Material: MR-311, MR-321: plastic ABS 94V-0 ("/C" Grey, "/C/R" Red) MR-312, MR-313, MR-322, MR-323: 18ga CRS ("/C" Grey, "/C/R" Red)	
APPROVALS:	"/S" and "/T" versions:	UL Recognized Component File #S3403 (UL864: UOXX2, UUKL2) (UL2017: UEHX2) (UL916: PAZX2) (UL508: NMTR2, NMTR8)
	"/C" versions:	UL Listed File #S3403 (UL864: UOXX, UUKL) (UL2017: UEHX) (UL508: NMTR, NMTR7) (UL916: PAZX)
	"/C/R" versions:	MEA 73-92-E Vol. 30
	Listed Versions:	CSFM 7300-1004:111

## CURRENT REQUIREMENTS:

### TRIP INPUT CURRENT DRAW

	TRIP VDC:	J1 IN	J1 OUT
J2 IN	5.0VDC	3.2mA	2.5mA
	9.0VDC	7.1mA	5.6mA
	9.6VDC	7.7mA	6.0mA
	12.0VDC	10.0mA	7.8mA
	13.2VDC	11.2mA	8.8mA
J2 OUT	18.4VDC	17.0mA	13.0mA
	18.5VDC	2.1mA	2.0mA
	19.2VDC	2.2mA	2.1mA
	24.0VDC	2.8mA	2.7mA
	26.4VDC	3.2mA	3.1mA
	27.3VDC	3.3mA	3.2mA

### HOST INPUT CURRENT DRAW

	HOST VDC:	MR-310	MR-320
J3 IN	12.0VDC	36.0mA	69.0mA
	13.2VDC	37.0mA	70.0mA
	18.4VDC	40.0mA	73.0mA
J3 OUT	18.5VDC	38.0mA	56.0mA
	19.2VDC	39.0mA	58.0mA
	24.0VDC	42.0mA	74.0mA
	26.4VDC	44.0mA	76.0mA
	27.3VDC	46.0mA	79.0mA

## WIRING

(TYPICAL FOR ONE  
MODULE POSITION)

### MR-310 SERIES

SPDT Contacts

Resistive: 10A @ 120VAC,  
7A @ 24VDC/VAC

Inductive: 0.35 PF (Power Factor)

RELAY OUTPUTS UL LISTED FOR  
"COMMON" USE

### MR-320 SERIES

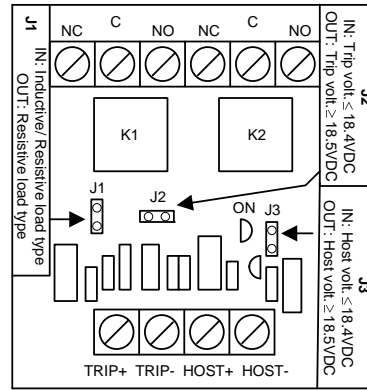
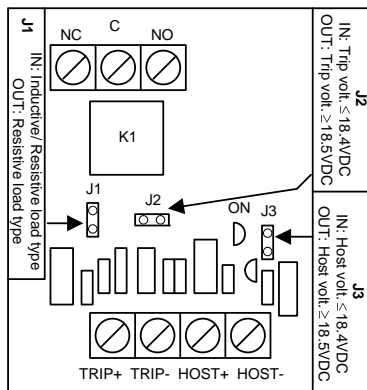
DPDT Contacts

Resistive: 10A @ 120VAC,  
7A @ 24VDC/VAC

Inductive: 0.35 PF (Power Factor)

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

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



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

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

**NOTE:** THE INPUT CURRENT SHALL NOT EXCEED THE MARKED RATING OF THE PRODUCT

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

# MR-310 and MR-320 SERIES JUMPER CONFIGURATIONS

Application Configuration						Trip Input		Host Input		
Modes (Application)	J1 (Load)	J2 (Trip)	J3 (Host)	Load Type	Inductive Load Breaking Power	Voltage	Current	Voltage	Current	
									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
"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
"D" (HI trip - LO host)	Out	Out	In	Resistive	Moderate	18.5 - 27.3VDC	2.0 - 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
"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
"H" As Shipped (HI trip - HI host)	Out	Out	Out	Resistive	Moderate	18.5 - 27.3VDC	2.0 - 3.2mA	18.5 - 27.3VDC		

## APPLICATION EXAMPLES



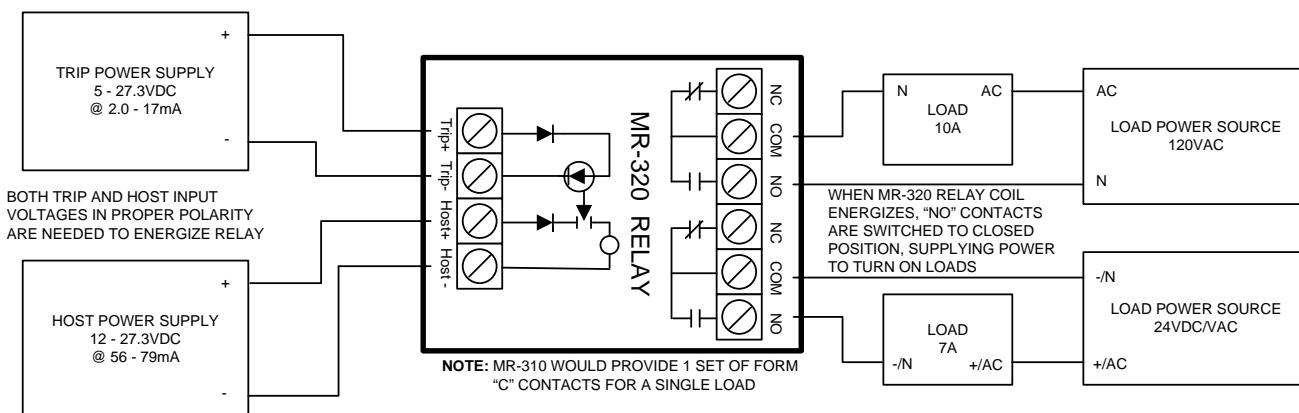
**CAUTION:** DE-ENERGIZE ALL POWER BEFORE INSTALLATION OR SERVICE

**CAUTION:** DE-ENERGIZE POWER PRIOR TO REMOVING OR INSTALLING JUMPERS

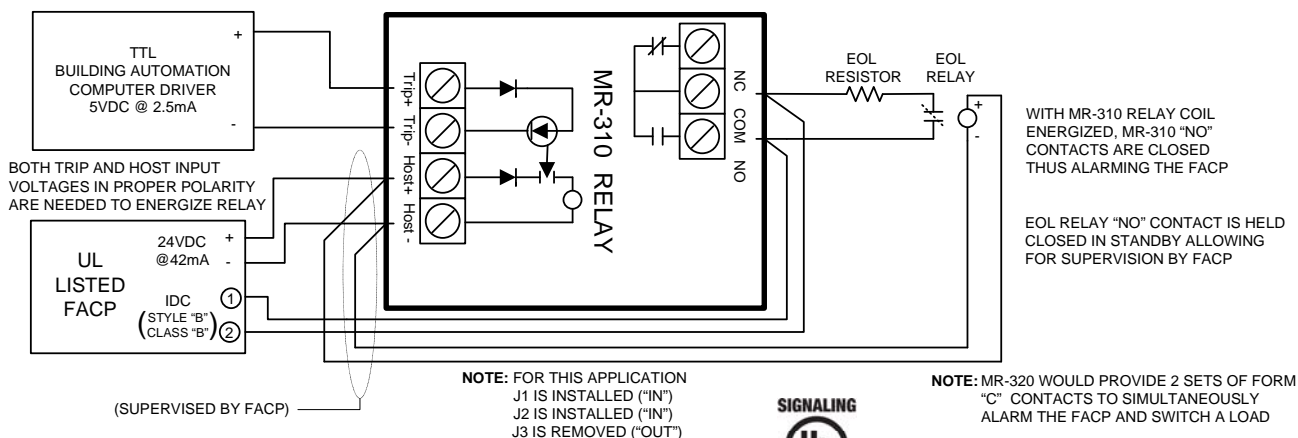
**NOTE:** INSTALLATION LIMITS UNDER JURISDICTION OF LOCAL AUTHORITY (NFPA STANDARDS 70, 72)

### MR-320 Dual Contact Voltage Example

(Simultaneously switches 120VAC and 24VDC/VAC)



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



FOR ADDITIONAL APPLICATION INFORMATION AND/OR ASSISTANCE, PLEASE CONTACT OUR TECHNICAL SUPPORT HOTLINE. (888) 332-2241



CSFM LISTED



MEA ACCEPTED



RECOGNIZED COMPONENT