

# Current Sensing Relay

## CR4395 Series



### OUTPUT OPTIONS

The Relay is available with three different output configurations, electromechanical relay, optoisolated NPN transistor or optoisolated triac. Specify desired selection in part number.

### RELAY (-ELR)

Arrangement: 1 Form C (SPDT)  
Contact Material: Silver-cadmium oxide  
Terminals: 3 1/4" Male QC  
Mechanical Life: 10 million operations, typ. @ rated load  
Electrical Life: 100,000 operations, typ. @ rated load  
Initial Contact Resistance: 50 milliohms max. @ 500 mA, 12 VDC  
Contact Rating: UL508/873 & CSA

### DC SWITCHING (-NPN)

V<sub>ce</sub> (full off): 30 VDC max.  
I<sub>sink</sub> (full on): 120 mADC max. @ rated full-on  
V<sub>ce</sub> (full on): 1.5 VDC @ 120 mADC I<sub>sink</sub>  
Off state leakage current: 5ua @ 30 VDC (typical)

### AC SWITCHING (-TRC)

Off state voltage: 240 VAC RMS max.  
Minimum switch voltage: 24 VAC RMS  
On state current: 0.5 AAC RMS max. continuous  
Switching mode: Zero crossing  
Off state leakage: 60 ua @ 240 VAC max.  
Terminals: 2 @ 1/4" Male QC

The **CR4395** Series, Current Sensing Relay provides an effective and highly stable method for monitoring electrical current. The current-carrying wire is routed through the opening extending from the top of the case. When current reaches the level set by the trip point adjustment, the relay trips and starts the adjustable timer. After the timer cycles the electromechanical relay is energized. A precision voltage reference circuit ensures a highly repeatable trip point.

### Applications

Monitor Electrical Heater Elements  
Sense Motor Over/Under Loads  
Detect Lamp burn-out  
Indicate Phase Loss

### Features

Variable Trip Point and Time Delay  
Monitors Currents from 1 AC to 100 AC Amps  
Electrical Isolation Between Circuits  
Output Relay Rated up to 20 Amps  
LED Trip Status Indicator  
Dead Band Prevents Relay Chatter  
Calibrated Dial Option Available  
External Current Transformers Available

### Specifications

Mounting:  
3/16" dia. clearance holes on 1<sup>5/16</sup>" by 2<sup>15/16</sup>" centers  
Environmental:  
Operating Temperature: -30° C to +60° C  
Storage Temperature: -55° C to +85° C  
Power-On Delay: 100 MS MAX  
Hysteresis: 5% Max.  
Input Supply Power:  
Typical 80mA                      Max 100mA  
Sensed Current:  
Max. Continuous: 200% Full Scale  
Frequency: 60-400 Hz \*  
\*All specifications for operation at 60 Hz only  
Weight 0.5 LBS.

### Regulatory Agencies



| VOLTAGE | LOAD TYPE | N.O. CONTACT | N.C. CONTACT |
|---------|-----------|--------------|--------------|
| 240 VAC | Resistive | 20A          | 10A          |
| 240 VAC | Motor     | 2HP          | 1/2 HP       |
| 125 VAC | Motor     | 1HP          | 1/4 HP       |
| 28 VDC  | Resistive | 20A          | 10A          |

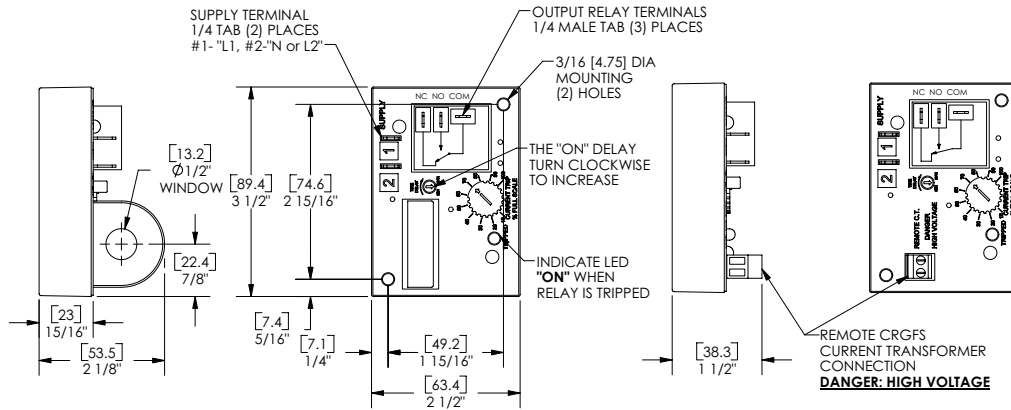


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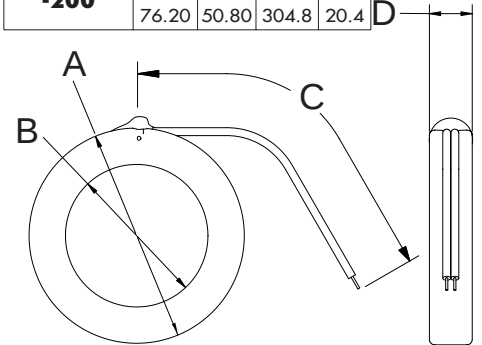
## OUTLINE DRAWING



Top view of Current Sensing Relay

## CR4395 Series

| CRGFS | A             | B             | C           | D             |
|-------|---------------|---------------|-------------|---------------|
| -100  | 2.88<br>73.16 | 1.60<br>40.58 | 12<br>304.8 | 0.79<br>20.07 |
| -200  | 3.00<br>76.20 | 2.00<br>50.80 | 12<br>304.8 | 0.60<br>20.4  |



Remote Current Transformers CRGFS - Series

Shown with Remote Current Transformer Option (-R)

## PART NUMBER

|        |   |  |   |  |  |   |  |  |   |  |   |  |   |  |   |  |
|--------|---|--|---|--|--|---|--|--|---|--|---|--|---|--|---|--|
| CR4395 | - |  | - |  |  | - |  |  | - |  | - |  | - |  | - |  |
|--------|---|--|---|--|--|---|--|--|---|--|---|--|---|--|---|--|

### TRIP STATUS

**EH** - Energized on High, trips when sense current is above trip point and returns to non-trip status when sense current is below the trip point.

**EL** - Energized on Low, trips when sense current is below trip point and returns to non-trip status when sense current is above the trip point.

**LH** - Latch on High, trips when sense current is above trip point and remains tripped until supply power is removed.

**LL** - Latch on Low, trips when sense current is below trip point and remains tripped until supply power is removed.

### SUPPLY VOLTAGE

#### AC

**120** - 120 VAC

**240** - 240 VAC

#### DC

**24D** - 24 VDC

All supply voltage tolerances are  $\pm 10\%$

### TRIP RANGE

**110** - 1.0 to 10 AAC

**330** - 3.0 to 30 AAC

**660** - 6.0 to 60 AAC

**101** - 10 to 100 AAC

The trip ranges shown are for one wire pass through the window opening. The trip range may be proportionally lowered with additional wire passes through the window.

### TRIP ON DELAY

**A** - .5 to 6 Sec.

**B** - 2 to 25 Sec.

**C** - .1 to 1 Sec.

**X** - none

Time-on delay is the time from when the relay trips to when the output energizes. The ranges are guaranteed minimum, actual range may be slightly greater.

### TRIP POINT DIAL

**CD** - Calibrated Dial

**FP** - Fixed Trip Point

(Specify value of fixed trippoint with order)



No adjustment dial provided with the fixed set point option

- CD

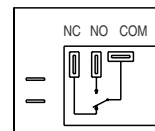
- FP

3.30 trip range shown

### I - INTERNAL TRANSFORMER

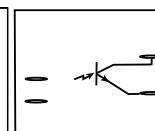
**R** - REMOTE TRANSFORMER

### OUTPUT OPTIONS



#### ELR

Electromechanical Relay



#### NPN

Optoisolated NPN Transistor



#### TRC

Optoisolated Triac, Zero Crossing

## CRGFS - EXTERNAL CURRENT SENSING RING TRANSFORMER

**100** - 1.60 dia. Window  
**200** - 2.00 dia. Window



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