



# Current Sensing Relay



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 electro-mechanical relay is energized. A precision voltage reference circuit ensures a highly repeatable trip.



Relay Option Shown (-ELR)

## Applications

- Monitor electrical heater elements
- Sense motor over/under loads
- Detect lamp burn-out
- Indicate phase loss

## Features

- Approved to UL508, Industrial Control Equipment
- Variable trip point and time delay
- Monitors currents from 10 mA 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
- External current transformers available

## Specifications \*

### Mounting:

3/16" dia. clearance holes on 1 15/16" by 2 15/16" centers

### Environmental:

Operating Temperature: -30°C to +70°C  
 Storage Temperature: -55°C to +85°C  
 0-95% RH, Non-condensing

### Input Supply Power:

Terminals: 2 - 1/4" Male Q C

### Sensed Current:

Max. Continuous: 200% Full Scale  
 Frequency: 50-400 Hz \*

\* All specifications for operation at 60 Hz only

## Output Options

The Relay is available with three different output configurations, electromechanical relay, optoisolated NPN transistor or zero-crossing 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 Q C  
 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

VOLTAGE	LOAD TYPE	N.O. CONTACT	N.C. CONTACT
240 Vac	Resistive	20A	10A
240 Vac	Motor	2HP	1/2HP
125 Vac	Motor	1HP	1/4HP
28 Vdc	Resistive	20A	10A

### DC Switching (-NPN)

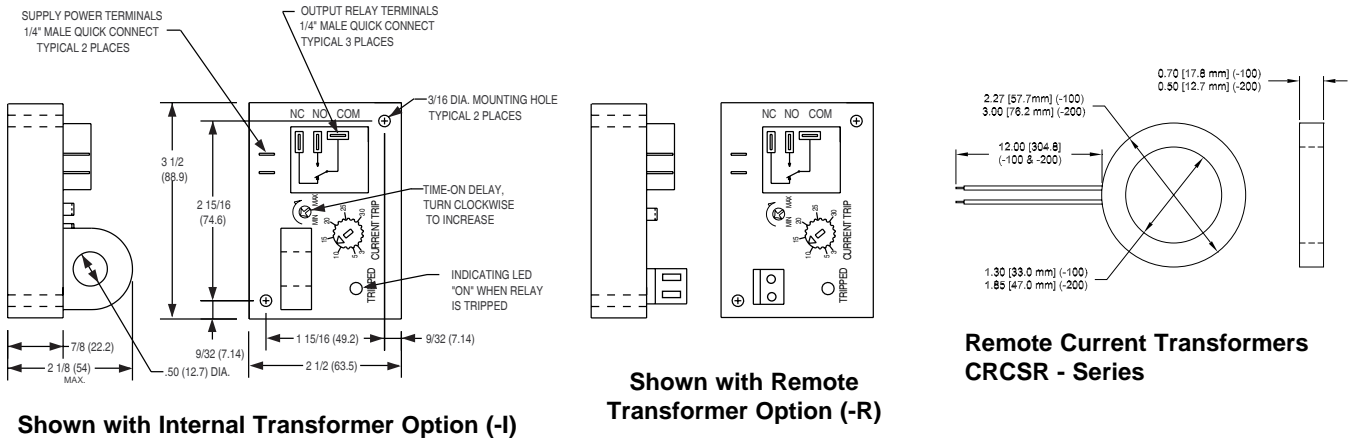
**Vce (full off):** 30 Vdc max.  
**Isink (full on):** 120 mAdc max. @ rated full-on  
**Vce (full on):** 1.5 Vdc @ 120 mAdc Isink  
**Off state leakage current:** 5 ua @ 30 Vdc (typical)  
**Terminals:** 2- 1/4" Male Q C

### AC Switching (-TRC)

**Off state voltage:** 240 Vac RMS max.  
**Minimum switch voltage:** 24 Vac RMS  
**On state current:** 500 ma. RMS max. continuous  
**Switching mode:** Zero crossing  
**Off state leakage:** 60 ua @ 240 Vac max.  
**Terminals:** 2- 1/4" Male Q C

# Current Sensing Relay

## Outline Drawing



## Part Numbers

**CR4395 - □□ - □□□ - □□□ - □ - □□ - □□□ - □ CURRENT SENSING RELAY**

### 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.

### TRIP RANGE

**.01.1** - .01 to 0.1 AAC  
**.11** - 0.1 to 1.0 AAC  
**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 POINT DIAL

**CD** - Calibrated Dial  
**FP** - Fixed Trip Point  
 (Specify value of fixed trip-point with order)



No adjustment dial provided with the fixed set point option

**- CD - FP**

-330 trip range shown

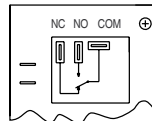
**I** - Internal Transformer  
**R** - Remote Transformer

### TIME ON DELAY

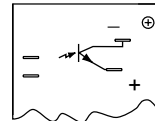
**A** - .5 to 6 Sec.  
**B** - 2 to 25 Sec.  
**C** - .1 to 1 Sec.  
**X** - none

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.

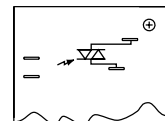
### OUTPUT OPTIONS



**ELR**  
Electromechanical Relay



**NPN**  
Optoisolated NPN Transistor



**TRC**  
Optoisolated Triac

### SUPPLY VOLTAGE

**AC**  
**120** - 120 VAC  
**240** - 240 VAC  
**DC**

**24D** - 24 VDC  
 All supply voltage tolerances are ±10%

**CRGFS - □□□ EXTERNAL CURRENT SENSING TRANSFORMER**

**100** 1.30 dia Window

**200** 1.85 dia Window