

# AC OVERCURRENT & UNDERCURRENT

## CAH, COH & CUH SERIES



- ◆ Monitors AC current
- ◆ Can be used as either an over-current or undercurrent relay
- ◆ Three separate adjustable Fault Trip Current ranges covering 0.5 – 50 amperes
- ◆ Built-in current transformer allows easy access & multiple loops for increased sensitivity
- ◆ Adjustable time delay on fault trip
- ◆ LED indicates fault condition
- ◆ 10A SPDT output contacts
- ◆ Encapsulated for protection in harsh environments
- ◆ Pilot Duty Rating



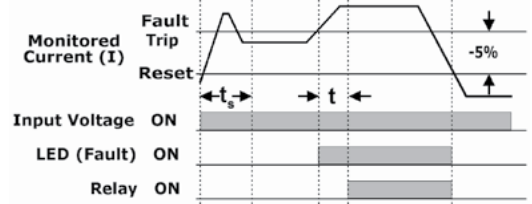
Better. By Design.

**800.238.7474**  
**WWW.MACROMATIC.COM**  
**SALES@MACROMATIC.COM**

The CxH Series is an AC current sensing relay that is available in three versions: **CAH Series**--can detect either an overcurrent or undercurrent fault (selectable); **COH Series**--overcurrent only; and **CUH Series**--undercurrent only. The current-carrying wire is run through the built-in current transformer and can be looped multiple times for greater sensitivity. These relays include user-adjustable settings for Fault Trip Current & Time Delay on Fault Trip as well as an LED to indicate fault condition. The encapsulated construction offers protection in harsh environments. Applications such as monitoring for locked rotor or load loss condition, open heater or lamp, and process control are perfect for these products.

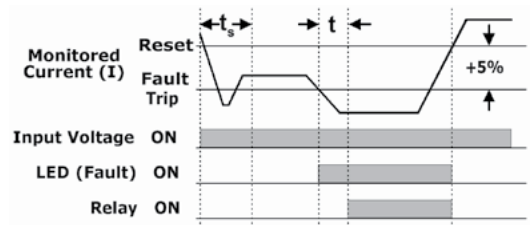
### Overcurrent Sensing

After input voltage is applied & the sensing delay on power-up ( $t_s$ ) is completed, the unit will begin sensing for a fault condition. A fault will occur when the monitored AC current ( $I$ ) goes above the Fault Trip Current setting & remains above the Reset level for a period longer than the adjustable time delay period ( $t$ ). The LED will turn ON immediately and the relay will energize after the time delay on pick-up ( $t$ ) is completed. The relay will de-energize & the LED will turn OFF when the monitored AC current goes below the Reset level.



### Undercurrent Sensing

After input voltage is applied & the sensing delay on power-up ( $t_s$ ) is completed, the unit will begin sensing for a fault condition. A fault will occur when the monitored AC current ( $I$ ) goes below the Fault Trip Current setting & remains below the Reset level for a period longer than the adjustable time delay period ( $t$ ). The LED will turn ON immediately and the relay will energize after the time delay on pick-up ( $t$ ) is completed. The relay will de-energize & the LED will turn OFF when the monitored AC current goes above the Reset level.



### CATALOG NUMBER

Complete by selecting proper code for each option below:

XXX XXX X X X

<b>FUNCTION</b> <b>CAH</b> Over & Under Current <b>COH</b> Overcurrent Only <b>CUH</b> Undercurrent Only	<b>FAULT TRIP CURRENT (I)</b> <b>05A</b> 0.5 - 5A <b>20A</b> 2 - 20A <b>50A</b> 5 - 50A	<b>INPUT VOLTAGE</b> <b>2</b> 120VAC <b>6</b> 12VDC <b>8</b> 24VAC/DC <b>1</b> 240VAC	<b>TRIP DELAY (t)</b> <b>A</b> 0.150 - 7 Sec. <b>B</b> 0.5 - 50 Sec. <b>Fixed Times</b> <b>F</b> followed by time delay in seconds, i.e., F0.5, F3, etc.	<b>SENSING DELAY ON POWER-UP (<math>t_s</math>)</b> <b>C</b> No Delay <b>D</b> 1 Second <b>E</b> 2 Seconds <b>F</b> 3 Seconds <b>G</b> 4 Seconds <b>H</b> 5 Seconds <b>J</b> 6 Seconds
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Example: CAH20A2BD, COH05A8AC, CAH20A2F1E

CURRENT SENSING RELAYS | ENCAPSULATED

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### APPLICATION DATA

#### Input Voltage Tolerance:

AC Operation: +10/-15% of nominal at 50/60 Hz.

DC Operation: +10/-15% of nominal

**Load (Burden):** 2VA for all voltages

#### Current Sensing:

Ranges: Separate 0.5-5A, 2-20A & 5-50A

Type: Toroidal, through hole wiring

Setting Accuracy: Min: +0%, -50%; Max: +10%, -0%

Maximum Allowable Current:

0.5-5A Range: Steady-25A Turns; 150A Turns Inrush for 10 Seconds

2-20A & 5-50A Ranges: Steady-50A Turns; 300A Turns Inrush for 10 Seconds

Trip Point Hysteresis: -5% Overcurrent sensing  
+5% Undercurrent sensing

#### Response Times:

Sensing Delay on Start-up: Fixed values from 0-6 seconds in one second increments

Time Delay on Trip (Relay ON): Adjustable 0.5-50 seconds or 0.1-7 seconds

Time Delay on Reset (Relay OFF): 100ms

Reset Time: 400ms

#### Output Contacts:

10 Amperes @ 240VAC, General Purpose

8 Amperes @ 28VDC, Resistive

1/4HP @ 120/240VAC

B300

#### Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

**Temperature:** Operating: -28° to 65°C (-18° to 149°F)

Storage: -40° to 85°C (-40° to 185°F)

**Indicator LED:** Red ON Steady when Fault occurs

#### Mounting:

Surface mount with two (2) #6 screws

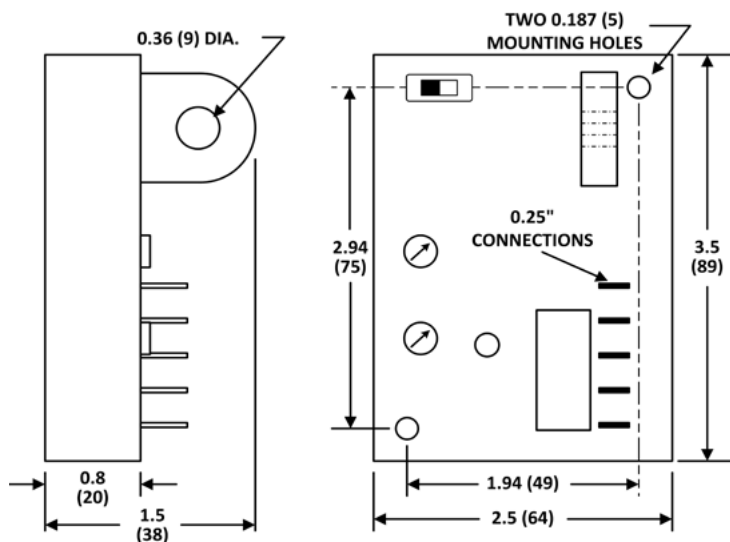
#### Termination:

0.25" male quick-connect terminals

#### Approvals:

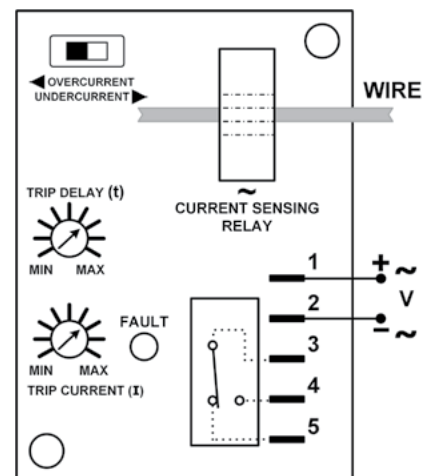


### DIMENSIONS



All Dimensions in Inches (Millimeters)

### CONNECTION DIAGRAM



# SOCKETS & ACCESSORIES

## 8 Pin Octal Socket- Surface or DIN Rail-Mounted

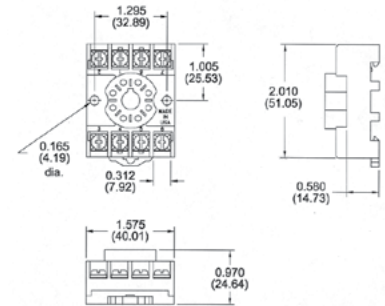
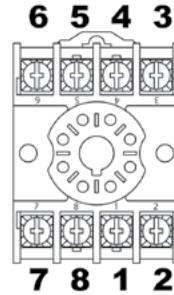
- ◆ 10A @ 600V
- ◆ 1 or 2 #12-20 AWG Wire
- ◆ Pressure Wire Clamp Terminations
- ◆ Recommended Tightening Torque  
12 in-lbs



File #E169693 File #LR701114



Catalog Number:  
70169-D



## 11 Pin Octal Socket Surface or DIN Rail-Mounted

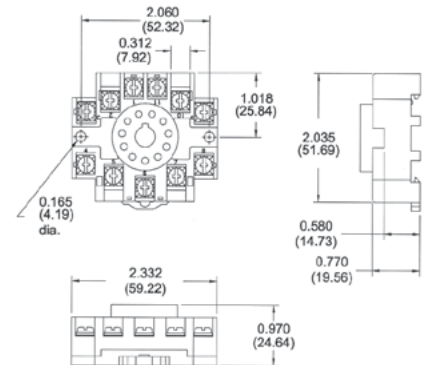
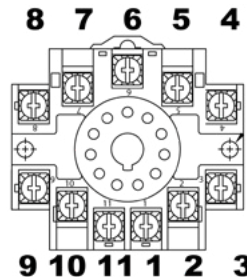
- ◆ 10A @ 300V
- ◆ 1 or 2 #12-20 AWG Wire
- ◆ Pressure Wire Clamp Terminations
- ◆ Recommended Tightening Torque  
12 in-lbs



File #E169693 File #LR701114



Catalog Number:  
70170-D



## Hold Down Spring Catalog Number 70166

Can be used for:

- ◆ Panel-Mounted Sockets
- ◆ Sockets Mounted to 35mm DIN Rail \*

\* Requires two #8, 3/4" length machine screws with washers & nuts--contact Macromatic or [www.macromatic.com/70166](http://www.macromatic.com/70166) for more information.

