# AC CURRENT SENSOR — MODEL CMS-500A

## MONITORS LOAD CURRENTS


## DESCRIPTION

The Model CMS-500A monitors load currents of devices such as fans, pumps and other critical items in HVAC systems. The solid-state relay output provides a run-status indication for these devices to compatible DDC/PLC control systems. The relay output of this model is completely isolated from the input current.

Units with the VF option are suitable for use in Variable Frequency Drive (VFD) systems with a frequency range of 12 to 60Hz. (order Model CMS-500A-VF)

NOTE: CMS-500A was previously CMS-500A-N.O.

## SPECIFICATIONS

**INPUT**

Current Range ..... 5-140A
Frequency
Standard ..... 60Hz
With VF option ..... 12-60Hz

**OUTPUT**

Solid State Relay ..... Form A, Normally Open, 120V, 2A, dc or ac noninductive
Response Time
Standard ..... 25ms
With VF option ..... 2s
Threshold Setting ..... Adjustable from 5-140A
Relay Action ..... Load current *under* threshold = Open
Load current *over* threshold = Closed

**INSTRUMENT POWER**

All models ..... Self Powered

**TEMPERATURE**

Operating Range ..... 10º-135ºF

**PHYSICAL**

Enclosure ..... Noryl SE1X, UL 94V-1
Net Weight ..... 0.25lb

**CONNECTIONS**

Input ..... Current-carrying cable is inserted through circular window opening. Maximum cable size #3/0 (dia. <0.62")

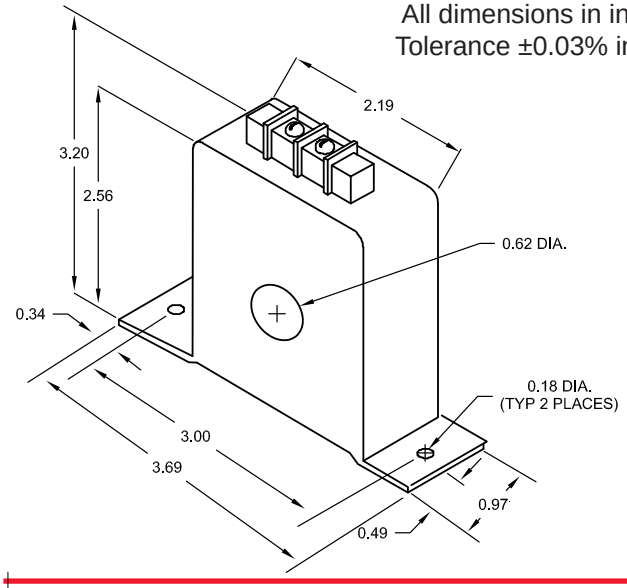
Output ..... Wire-retaining screw terminals No. 6/32 Maximum wire size #14 AWG

**LED LOAD INDICATORS**

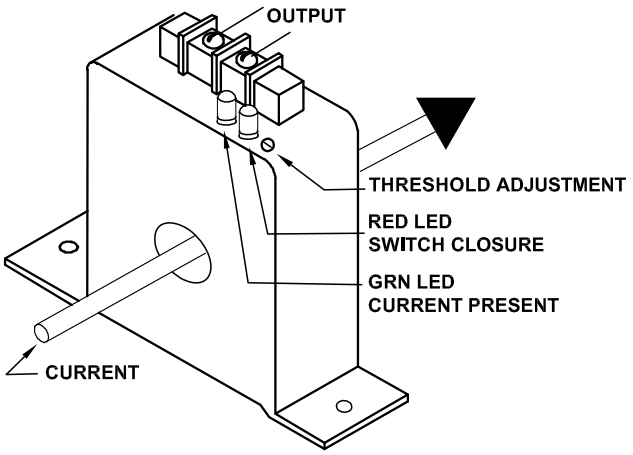
Load current *under* threshold = Green
Load current *over* threshold = Red
Load current less than 5A = None

## CASE DIMENSIONS

All dimensions in inches.
Tolerance ±0.03% inches.




## CONNECTIONS

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## INSTALLATION

1. The CMS-500A may be mounted in any type of protected enclosure, motor starter, motor control center, control system field panel, or disconnect switch.
2. The current-carrying cable must pass through the circular window opening. Permanently affix the CMS-500A to the cable with a conventional cable tie or similar non-conductive material. The unit may be oriented in any position.
3. Alternatively the CMS-500A may be mounted to any flat surface, such as the back panel of the enclosure - see Case Dimensions for mounting dimensions.
4. Should mounting space be limited, the mounting feet of the CMS-500A may be snapped off.

## SETUP

1. After the CMS-500A has been installed, energize the load and observe the two LEDs.
2. If either LED is illuminated, there is more than 5A present in the conductor.
3. Turn the threshold adjustment potentiometer counter-clockwise until only the green LED is illuminated.
4. Next, turn the adjustment potentiometer clockwise until the green LED turns off and the red LED is illuminated. Setup is now complete.
5. Cycle the load and observe operation.
6. When the load current is under the threshold setting, only the green LED will be illuminated
7. When the load current is over the threshold setting, only the red LED will be illuminated.

Note 1: For load amperages greater than 140Aac use an external current transformer (C.T.) of an appropriate ratio such as 500:5. Feed the C.T. secondary through the CMS-500A window with one pass. Adjust the threshold setting as described above.

Note 2: The CMS-500A current switch uses a solid-state relay output. Contact closure can be verified by a continuity meter.

Note 3: The CMS-500A solid-state relay output may be used to switch either dc or ac noninductive loads of up to 120V and 2A.

Note 4: The CMS-500A must have at least 5A through the window opening. For loads less than 5A, place enough additional turns of the main current-carrying cable through the window to provide at least 5 Ampere-turns.

Example:
1 Amp load - use 5 turns for 5 Ampere-turns
2 Amp load - use 3 turns for 6 Ampere-turns
3 Amp load - use 2 turns for 6 Ampere-turns
4 Amp load - use 2 turns for 8 Ampere-turns

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