

# Installation Instructions

## CurrentWatch™ EAC Series Current Sensors

### Powered AC Current Sensors, 120V AC or 24V AC/DC, 4-20 mA Output



## WARNING

### IN ORDER TO AVOID ELECTRIC SHOCK OR OTHER POSSIBLE INJURY:

- **DO NOT USE THIS PRODUCT FOR HUMAN SAFETY APPLICATIONS. IT WAS NOT DESIGNED, TESTED OR RECOMMENDED FOR THIS USE.**
- **DO NOT USE THIS PRODUCT IN HAZARDOUS LOCATIONS (E.G. EXPLOSIVE ATMOSPHERES). IT WAS NOT DESIGNED, TESTED OR RECOMMENDED FOR THIS USE.**
- **ENSURE THE PRODUCT IS PROPERLY WIRED TO THE CORRECT POWER SUPPLY FOR THE APPLICATION. REFER TO THE SPECIFICATIONS AND WIRING DIAGRAMS IN THIS MANUAL.**

## MODELS COVERED IN THIS MANUAL

Catalog Number	Description
EACP0420120SP	120V AC Power Supply, 2/5A Range, 4-20 mA Output
EACP1420120SP	120V AC Power Supply, 10/20/50A Range, 4-20 mA Output
EACP2420120SP	120V AC Power Supply, 100/150/200A Range, 4-20 mA Output
EACP042024USP	24V AC/DC Power Supply, 2/5A Range, 4-20 mA Output
EACP142024USP	24V AC/DC Power Supply, 10/20/50A Range, 4-20 mA Output
EACP242024USP	24V AC/DC Power Supply, 100/150/200A Range, 4-20 mA Output

## INTRODUCTION

The CurrentWatch™ EAC Series Powered combines a current sensor and signal conditioning electronics in a single package for use in 120V line-voltage or 24V AC/DC control power applications. The combination of these devices results in a single unit with higher accuracy, fewer individual terminations and a space-saving simplified installation.



The EAC Series family of powered current sensors are available in split-core enclosures with 4-20 mA analog outputs. These sensors are average responding and intended for use in constant or on/off load applications with sinusoid waveforms.

Eaton's current sensor family encompasses a broad range of products for cost-effective monitoring, status, and predictive maintenance. Downtime and costly repairs can be avoided by utilizing Eaton's products and technologies in your control systems.

## QUICK INSTALL GUIDE

The below steps can be followed to quickly install a CurrentWatch™ EAC Series Powered sensor.

1. Run the wire to be monitored through the aperture
2. Mount the sensor to a surface if needed
3. Connect output wiring, using up to 12 AWG copper wires
4. Choose the correct range by positioning the Range Jumper

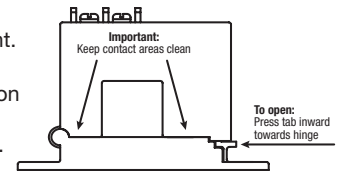
## INSTALLATION

Considerations for all EACP Series models...

- These sensors can be located in the same environment as motors, contactors, heaters, pull-boxes and other electrical enclosures
- Mounting can be done in any position or hung directly on a wire with a wire tie
- Be sure to leave at least one inch distance between sensor and other magnetic devices

Considerations for split-core models only...

- Press the tab in the direction shown in the diagram to the right.
- After placing the wire in the aperture, press the hinged portion firmly downward until a click is heard and the tab pops out fully.
- Keep split-core contact areas clean. Silicon grease is factory applied on the mating surfaces to prevent rust and improve performance. Be careful not to allow grit or dirt into the grease in the contact area, particularly on core mating surfaces of split core models. Sensor operation could be impaired if mating surfaces do not have good contact. Check visually before closing.



## RANGE SELECTION

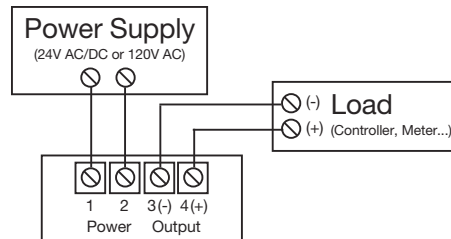
The CurrentWatch™ EAC Series Powered sensors feature field selectable ranges. The ranges are factory calibrated, eliminating time consuming and inaccurate field setting of zero or span.

### Setting Range

1. Determine the normal operating amperage of your monitored current
2. Select the range this is equal to or slightly higher than the normal operating amperage
3. Place the Range Jumper in the appropriate position

## OUTPUT WIRING

Connect control or monitoring wires to the sensor. Use up to 12 AWG copper wire and tighten terminals to 4 inch-pounds torque.



### Connection Notes:

- Deadfront captive screw terminals
- Use 12-22 AWG solid or stranded
- Observe polarity

**MAXIMUM INPUT AMPS**

Range	Maximum Amps	
	6 sec.	1 sec.
0-2A	125A	250A
0-5A	125A	250A
0-10A	125A	250A
0-20A	150A	300A
0-50A	215A	400A
0-100A	300A	600A
0-150A	450A	800A
0-200A	500A	1,000A

**TROUBLESHOOTING**

Problem	Solution for Current Output Models
Sensor has no output	Power supply is not properly sized. Check power supply voltage and current rating.
	Polarity is not properly matched. Check and correct wiring polarity.
	For split core models, the core contact area may be dirty. Open the sensor and clean the contact area.
Output signal is too low	The range may be too high for the current being monitored. Select a different EACP Series model with lower range.
	The load current is not sinusoidal. Select an EACR Series sensor that works on distorted waveforms.
	Monitored current is below minimum required. Loop the monitored wire several times through the aperture until the "sensed" current rises above minimum. ('Sensed Amps' is equal to 'Actual Amps' multiplied by the 'Number of Loops'.)
Output signal is always at 20 mA	The range may be too low for the current being monitored. Select a different EACP Series sensor with a higher range.
Output signal is always at 4 mA	Monitored load is not AC or is not on. Check that the monitored load is AC and that it is actually on.

**SPECIFICATIONS**

Specification	Value
Power Supply	Models Ending 120SP: 120V AC Models Ending 24USP: 24V AC/DC, 40V Max.
Output Signal	4-20 mA
Output Limit	23 mA
Output Load	500W Max.
Response Time	100 ms (90% of Step Change)
Frequency Range	40-400 Hz
Accuracy	1% FS
Loading	500 ohms
Isolation Voltage	UL Listed to 1,270V AC, Tested to 5,000V AC
Sensing Aperture	Solid Core Models: 0.75 in. (19mm) dia. Split Core Models: 0.85 in. (21.7mm) sq.
Housing	UL94 V0 Flammability Rated
Environmental	Operating Temperature: -4 to +122° F (-20 to +50° C) Humidity: 0-95% RH, Non-Condensing
Approvals	UL 508 Industrial Control Equipment (Pending, USA and Canada) CE Certified