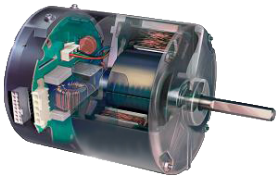
What are ECMs?



Electronically Commutated Motors (ECMs) function using a built-in inverter (that converts AC current to DC current) and a magnet rotor, and as a result are able to achieve greater efficiency in air-flow systems than some kinds of traditional AC motors. ECMs are also relatively low-maintenance; the use of true ball bearings reduces the need for oiling and varied start-up speeds reduce stress on mounting hardware. The initial cost of an ECM can be high, but is typically balanced by overall energy savings in the long run.

Why are ECMs gaining momentum in the industry?

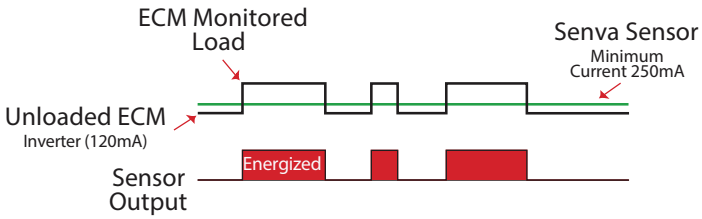
ECMs are cost and energy efficient and can reduce operating costs. They maintain a high level (65 to 75 percent) of efficiency at a variety of speeds. In comparison, traditional AC motors can be inefficient when used in air control systems because the fan motor noise can require the motor to run at less than a full load. When turned down, AC motor efficiency suffers in comparison to ECMs.

What are the challenges with monitoring an ECM with digital current sensors?

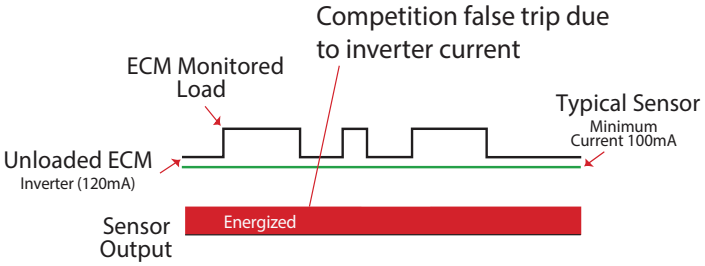
ECMs have an inverter that draws in AC current and converts it to DC current. These inverters draw up to 120mA when the motor isn't running. If you're using a fixed current sensor with a extremely low trip-point (150mA or better) it will falsely indicate the motor is running when in fact it is only passive current draw from the inverter. This is because most current sensor manufacturers only test the top end of their fixed range, meaning a range of 150mA or better current sensor could turn on at 50-60mA, making it incompatible with ECMs and resulting in a false status.

How can Senva help monitor status on ECMs?

Choosing a current sensor with a fixed set point above the 120mA threshold will help avoid false trips. Senva has adjusted the set point across the fixed current sensor line above the ECM threshold so that none of the fixed current sensors trip below 150mA. This includes options in our solid-core and split-core lines.



The Senva go/no series output changes state whenever current above the minimum turn-on is present. This provides "go/no" status on ECMs without false trips due to the inverter current.



Typical go/no sensors with lower trip points may not change output as they are prone to false trips from the inverter current. The end result is a sensor that cannot distinguish when the ECM is loaded or unloaded.

ORDERING INFORMATION

SPLIT CORE	Min (on)	Max A	N.O. Output*
C-2300	0.35A	200A	1.0A@30VAC/DC
SPLIT CORE - MINI			
C-2200	0.5A	50A	1.0A@30VAC/DC
SOLID CORE			
C-1300	0.25A	50A	1.0A@30VAC/DC
SOLID CORE - MINI			
C-1200	0.25A	50A	1.0A@30VAC/DC
MULTI-POINT SENSOR			
C-1500-6	0.3A	50A	1.0A@30VAC/DC


C-1200


C-1500-6


C-1300

ECM Certified


C-2300


C-2200

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