

# SOFTWARE MOTOR COMPANY

## INTRODUCING THE LED OF MOTORS

Having an energy management strategy is critical if companies want to be competitive and operate sustainably. With lighting, the trend has been to replace incandescent and CFL bulbs with LED lights. Yet, lighting accounts for just 20 percent of a building's total energy use. HVAC, refrigeration, and pumps are driven by electric motors that account for over 45 percent. Less well known is that nearly half of this energy was wasted the same way lighting was before LEDs.

The efficiency of pervasive AC induction motors ranges from 85-97 percent in ideal full-load conditions. In real-world settings, when their variable speed drive throttles the sine-wave current powering the motor, efficiency rates drop and can even go even below 50 percentage due to inherent resistive losses in the rotor. These motors can be unreliable and if they fail, it is without warning.



SMC's motors are intrinsically intelligent, enabling unprecedented reliability and flexibility at a fraction of the cost of conventional motors.



The Software Motor Company (SMC) is revolutionizing the electric motor industry by solving these problems. The Silicon Valley-based company has developed a Smart Motor System that is efficient, reliable, and intelligent, and dubbed the "LED of motors." SMC's motors reduce energy use and costs—typically between 30-50 percent—helping dramatically cut electricity bills and environmental impacts.

"SMC motor systems are based on a fundamentally different architecture—an inherently programmable design," said Ryan Morris, executive chairman of SMC.

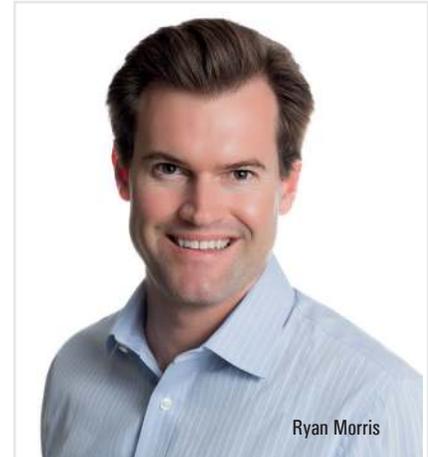
The motor is based on a patented variant of switched reluctance motors used in harsh environments such as mines and nuclear reactors. SMC combined cutting-edge mobile computing and electric vehicle technologies to develop a smart motor that is intelligent and self-sensing.

"SMC's Smart Switched Reluctance Motor is intrinsically intelligent, enabling unprecedented reliability and flexibility at a fraction of the cost of conventional motors," Morris said.

The SMC Motor System—a motor, Smart Motor Drive or inverter, and IoT controller—optimizes efficiency by using energy only when needed and provides real-time visibility and actionable insights on building systems. These self-sensing and connectivity features are two IoT benefits; users can also perform analytics and reprogram or adjust operating parameters from any connected device.

Similar to how LEDs easily replace conventional lighting, SMC's motor can be retrofitted into existing systems. Every SMC motor has its own dynamic building control system configurations and can integrate with legacy building automation systems.

While it has received numerous third-party validations and awards, SMC works with utilities and installation partners so customers can "test drive" the motors and validate their efficiency. This is a key selling point for energy managers burned by the previous wave of so-called innovations that didn't deliver as promised.



Ryan Morris

"To be frank, it is only very recently that cleantech has been an economic pursuit. Until just recently, the early 'green' wave was about spending money on environmental stewardship."

Customer investments are typically recouped within two years even before utility rebates. Clients can choose from flexible pricing options including a zero-upfront managed service model or capital purchase with a five-year warranty, five times longer than the industry standard.

Morris recounted how a customer, a California restaurant, retrofit its HVAC system with SMC motors. Energy use declined 40 percent and a costly oversight was discovered: the manager switched off the lights at night not realizing they were wired to the main breaker. When SMC's connected motors were alerted that the building—including refrigerators—was not being powered overnight, the mystery of the rapidly spoiling oysters was finally solved.

Initially focused on the domestic market, SMC plans to expand into the global electric motor market. "We ultimately hope to replace every inefficient analog motor out there with intelligent SMC motors," Morris said. **EC**