



Smart Starter

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At right are three of the seven-model family of Wattstop™ Reduced Voltage AC Motor Starters manufactured by Firing Circuits Inc., Norwalk, Connecticut. Wattstop solid state starters are designed to provide an effective and economical method of starting standard three phase AC motors. By applying voltage to the motor gradually, they reduce the harmful effects of “slam” starting (mechanical shock and electrical power surges), which in turn cuts maintenance costs and obviates the problem of electrical interference with other loads.

Firing Circuits calls Wattstop the “Smarter Starter.” It employs a “smart” microprocessor to monitor the motor’s load and set the motor voltage at the level where its operation is most efficient. If the load drops, Wattstop reduces the voltage to lower operating costs; if the load increases, Wattstop immediately brings the voltage up to the proper level. This energy saving feature, standard on all members of the Wattstop family, derives from NASA technology, specifically a device known as the Power Factor Controller (PFC) developed at Marshall Space Flight Center more than a decade ago.

The PFC was invented by Marshall engineer Frank Nola, who came up with a way to curb power wastage in AC induction motors. The wastage is caused by the fact that such



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motors operate at a fixed voltage, the voltage needed to handle the heaviest loads the motor is designed to carry. Nola’s answer was a device — the PFC — that matches voltage with the motor’s actual need by continuously sensing shifts between voltage and current; when it senses a light load it cuts the voltage to the minimum needed. The PFC offers potential energy savings ranging from eight to 65 percent, depending on the type of application. It has become one of the most widely used spinoffs of NASA technology, with licensees numbering in the hundreds.

The Wattstop family includes starters ranging from two through 1,500 horsepower and from 208 through 575 volts. They are in service on such equipment as cranes, hoists, conveyors, compressors, fans and pumps, saws, grinders and elevators in such applications as food and beverage processing, materials handling, water and waste treatment, paper-making, plastics, metalworking and woodworking. ●

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