

## Power Monitoring for Process Control

When machinery goes quiet, everyone looks to you for a solution. While you're scrambling to find the answer and get everyone back to work, the thought that the break down could have been avoided never leaves your mind.

Monitoring the electrical power consumption of equipment will provide valuable information about the condition of the machine and of the process. A single analog signal proportional to the watts being used can be interpreted as an imminent problem before the problem causes damage to product or to equipment. Bearing failures, blocked pump intake or discharge, phase loss and voltage sags will be reflected in the power consumption.

By monitoring changes in power consumption, a significant increase or decrease will point quickly to a problem. Power use rising will indicate a need for maintenance, while declining power consumption may indicate immediate attention is required. Monitoring inductive loads (motors and transformers) will take power factor into consideration. In applications where a load is not constant or the motor is over sized, the power factor improves as the load increases. The current draw of a standard squirrel cage motor does not rise in proportion to the wattage until the load is around half of the nameplate ratings. Consequently monitoring current only will not be as accurate as sampling power use.

### Power Monitoring Applications

- **Grinders**  
Detect overloaded burrs; optimize feed rate
- **Crushers**  
Monitor for jammed or worn rolls
- **Machine Tools**  
Monitor force on the work or dulled bits
- **Drill Presses**  
Keep the operation working at maximum efficiency
- **Cost Allocation**  
Monitor the power usage of each machine

## Power Monitoring Transducers— An Inexpensive Solution to Costly Interruptions in Your Process

NK Technologies offers several power monitoring transducers. The APS series is well suited for monitoring motor driven loads, or any load where the current is balanced across each phase. The sensor is placed over one conductor, and the line voltage is connected to two terminals. The loop powered, 4-20 mA output signal is scaled at the factory to represent the demand in watts, based on the primary voltage and the current through the sensor opening. The APS products are suitable for all single phase loads, and balanced three phase loads, with output accurately representing the wattage used. The product features simple two wire loop powered connection to a PLC, data logger or panel meter.

