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More Simply and Effectively Monitor Heating Element Controls with ATH Series Current Transducers from NK Technologies

Accurately measure sinusoidal, distorted, or pulsed current wave shapes without additional hardware and its associated costs and space requirements

SAN JOSE, CA – [NK Technologies](#) introduces the [ATH Series AC Current Transducer](#). The ATH is specifically designed to monitor power controlled by phase-angled fired, burst fired or time proportioned silicon-controlled rectifiers (SCRs) in heating applications, without requiring an external current transformer or shorting blocks. Patent pending Time Integration functionality incorporated in the ATH design provides an output signal directly proportional to the RMS amperage to ensure accuracy regardless of the AC current wave shape. The sensor samples the AC current continuously, updating its own time base when the current returns to the load after a pause. Based on the magnitude of the burst and the time interval between bursts, the sensor output represents the amount of power used by the connected load.

“Monitoring the current or power controlled by SCRs can be a challenge, especially the current used by heaters,” says Philip Gregory, President, NK Technologies. “Whether the heat is limited by phase-angle fired or zero-crossing (burst) fired SCRs, the ATH provides an output signal directly proportional to the RMS amperage. Zero-crossing fired controls allow current to flow to the circuit for as short of a time period as one cycle, and off for several cycles. Most current sensors will not work well when there is no current present, giving an output which is inaccurate or as our customers describe it: Jittery or jumping around”. This capability is important to detect a heating element failure allowing the process to be paused or halted before the processed material is improperly treated, resulting in product being scrapped.”

As Gregory explained, the ATH current transducer is ideal for [heating applications](#) because it provides faster response time than temperature sensors and is the simplest method to monitor pulsed or chopped wave forms. Unlike current transformers, the design allows the sensor to remain installed over the

conductor while the heating circuit is energized, safely, even if there is no load connected to the output terminals.

The ATH also is ideal for monitoring variable frequency drive applications because the sensor output is proportional to the RMS current used by the load. The high sample rate allows for a smooth and accurate output regardless of the distortion of the current wave shape created by the drive.

The ATH current transducer installs quickly and easily via a two-screw panel mount or with optional DIN rail brackets, or suspended from the conductor in any position. It is available in three industry standard outputs: 4-20mA, 0-5 VDC and 0-10 VDC. Its split-core case style can be externally powered by 24 VDC. Solid-core models that are externally powered by 24 VAC or DC or 120 VAC will be available in the near future.

NK Technologies offers no-cost [test and evaluation units](#) to qualifying OEMs. Visit the [Engineering Resources](#) section of NK Technologies website for access to numerous application notes and a technology [white paper](#) on current sensing technology.

ABOUT NK TECHNOLOGIES

Founded in 1982, NK Technologies designed the first the low-cost solid-state current sensing technology that underlies the industry today.

Today NK Technologies is a leading provider of current sensing, ground fault detection and power monitoring products to the [industrial and factory automation markets](#), with a product portfolio that includes more than 1300 models to satisfy a wide range of specific application needs. As the needs of these markets change, NK Technologies is well-positioned to respond with sophisticated new product designs and improved product functionality necessary to meet those applications.

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