

Detect Current Leakage for Preventive Maintenance with 4-20mA Current Transducers

Imagine having the ability to detect a leak in a pipe before the liquid or gas escapes. You could repair or replace the pipe when convenient, while the equipment was at rest or during a scheduled shut down. Sensing electrical current leakage to earth can give you this ability. Monitoring the current supplied to any AC load by surrounding the conductors with a sensing ring will show if any amount of power used is not returned to the source. This lost power is "leaking" to earth.

Faults to ground occur generally in one of two ways: (1) An energized conductor will contact a grounded point, creating sparks, smoke or fire. This will usually trip the over current protection, either a circuit breaker or fuses. But metal will incandescence with a fault of just 500 milliamps. (2) Insulation deteriorates causing low level current to pass to earth. This failure will seldom create enough fault current to trip a breaker or blow a fuse. The former fault occurs instantaneously, but the latter often occurs very slowly, and it occurs very frequently. This creates hazardous conditions putting operators and maintenance personnel at risk for electrocution, and increasing the probability the equipment will be damaged, resulting in production stoppage.



Current Leakage Detection

- Monitor heating or other loads to detect increasing leakage current
- Pass all current carrying conductors through aperture to sense zero-sum current

Monitoring Very Light Loads

- Measure very small, critical loads accurately
- Current measurement gives faster response than temperature measurement

AGT Ground Fault Indicators Use Proven Zero Sum Technology to Detect Earth Leakage

NK Technologies' new loop powered sensor for monitoring earth leakage is based on proven, zero sum current technology. This new sensor produces a constant signal proportional to the leakage current. The industry standard 4–20 mA output can be connected to a PLC or data logger, with the 4 mA signal representing no earth leakage, and 20 mA representing fault current of either 50 or 100 mA (dependant upon choice of unit).

As the insulation degrades the fault current increases. The controller can be programmed to alarm at one level, for example, 15 mA and disconnect the load if the fault increases over 30 mA. These parameters can be established in advance by the design engineer and are easily programmed in the controller.

Monitoring residual earth leakage current is required in many applications from electrical heating elements to water fountain pumps. Using a constant signal proportional to the fault current will help protect any electrically driven machine or process.

