

Safety of
industrial
installations

Reduce Data Acquisition Costs

In today's environment, it's necessary to have a reliable, consistent and safe production process. Electrical current monitoring is an efficient way to satisfy these requirements. However, integrating a sensor could be expensive. How can you easily add this function?

In industrial processes, it is common to use sensors to regulate or monitor the production.

Devices used include limit switches, torque meters, speed sensor, temperature sensors etc.

Industrial environments require frequent maintenance and calibration for this array of sensors.

Measuring current consumption of machines is an alternative way of achieving a lot of these functions. Current transducers can totally be integrated in electromechanical installations, they are easy to install and do not require a specific maintenance.

As an example, detection of a current threshold of a machine can replace a limit

switch to identify if the process is operating or stalled/stopped for any reason.

Alternatively, a transducer can be used both to monitor overloads (e.g. detection of 1.2 times the nominal current I_n) and to protect the system (e.g. detection of $5 \times I_n$). This will reduce the number of measurement points in the process and allow continuous monitoring both for statistical analysis and to prove the transducer is working.

To ease the integration of current measurement in your system, LEM produces a range of current transducers which can easily be integrated around existing power cables without the need for a separate power supply.

This range of transducers are self powered. The AK series of transducers from LEM, calculates the RMS value of an AC signal with voltage outputs that are either 5VDC or 10VDC.

The Clamp On models allow for fitting the devices without disconnecting existing cables. The output is galvanically isolated from the primary current for extra safety and the devices can be panel mounted or fitted to a standard DIN rail by using the appropriate adaptor.

Applications

- **Automation Systems**

Current measurement for remote monitoring (eg.. motors, pumps, air conditioning, heaters).

- **Data Loggers and SCADA systems**

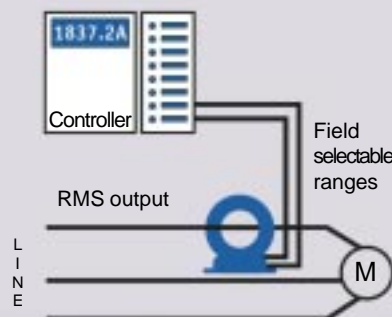
Current monitoring for systems diagnostics and alarming.

- **Displays**

Consumption current monitoring of systems.

Features

- AC current measurement
- RMS calculation
- Voltage Output signal
- Self powered transducers
- Isolation up to 5kV
- Selectable jumper
- Panel or DIN mounting



SELF POWERED CURRENT TRANSDUCERS: **AK-B** and **AK-C** Series



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Application Note



Status Alarming

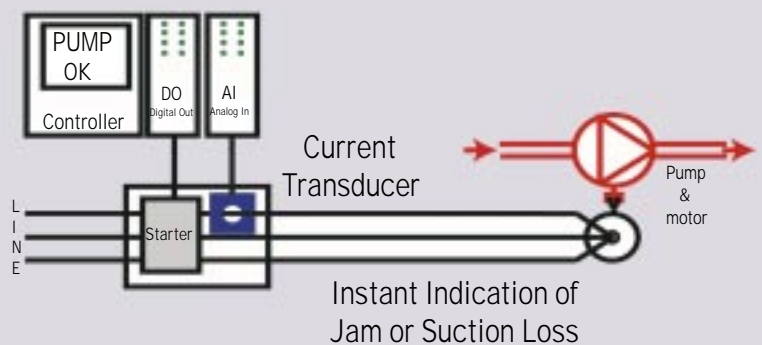
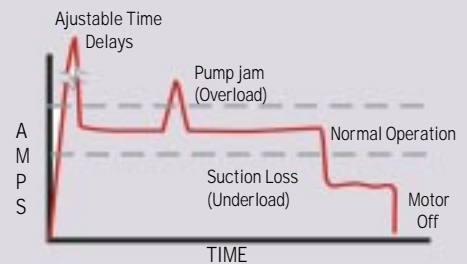
A common belief is that auxiliary contacts attached to a motor starter will indicate when a load comes on. However, auxiliary contacts only signal the position of a contactor, not the actual load status. If a downstream disconnect is opened for maintenance or the contact sticks, there can be serious consequences.

At a large fish farm, failed aerator pumps resulted in massive stock losses. Because the auxiliary contacts remained closed when a pump failed, the alarm was never activated, the back-up pumps were not switched on, and the fish suffocated.

Pump Jam and Suction Loss Protection

Wastewater pumps can become jammed with organic matter and cause damage to both the motor and the pump before thermal overloads are tripped. Alternately, a blockage in the pump suction line can cause the pump to run dry, overheat and break a seal.

By installing a motor monitor on one leg of the motor leads you can monitor overloads (jammed pump) or running light (loss of suction).



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