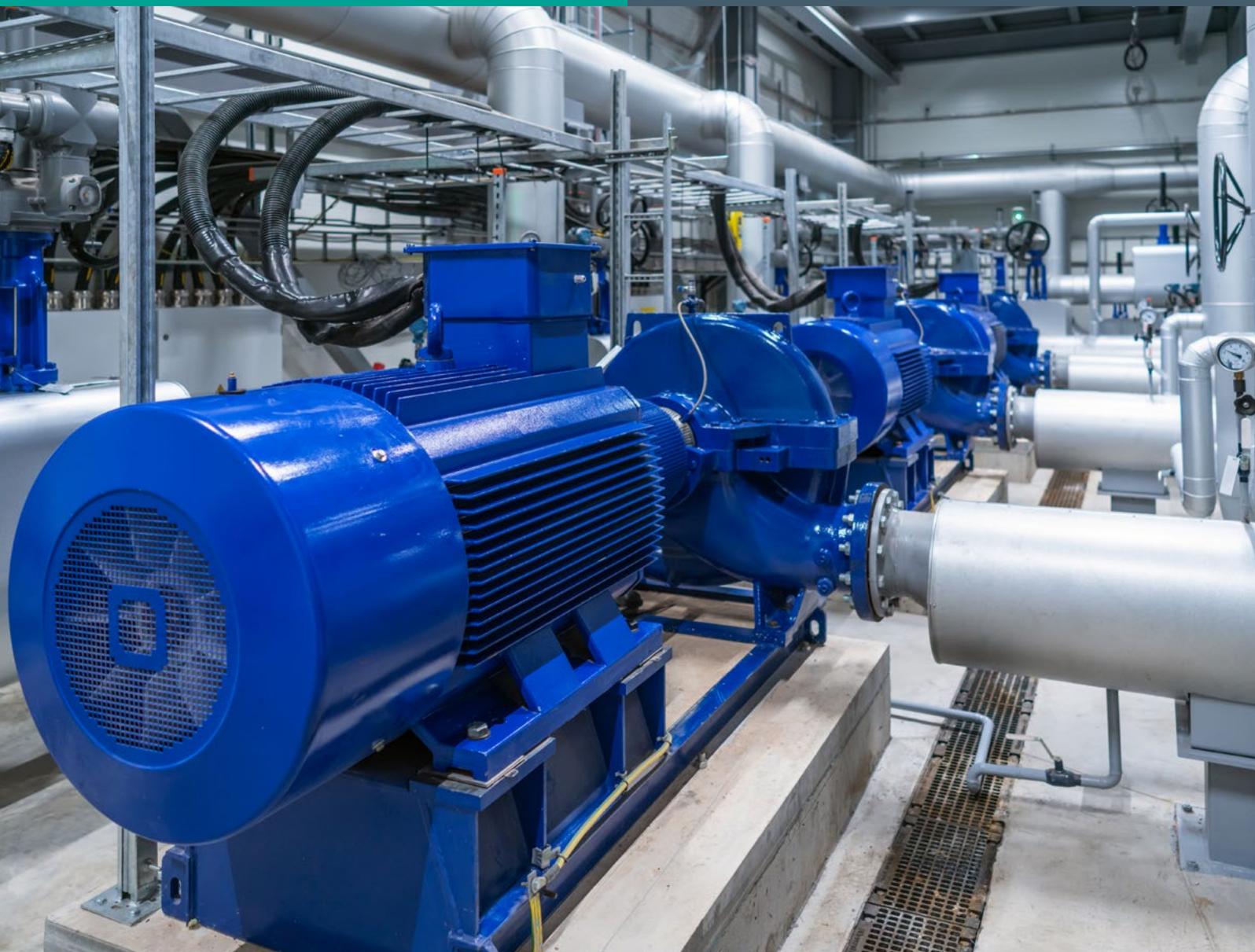


Intelligent and Efficient: Temperature Measurement with Trip Amplifiers

Implementing Electrical Machine
Monitoring Concepts with
Interface Modules

At a Glance

- Temperature converters with trip values allow the temperature to be monitored without having to intervene in the control system, for example if the trip points change.
- These are suitable for all types of signal converters used to measure temperature (thermocouples, resistance thermometers, potentiometers).
- The module is part of the K-System product family, which includes additional trip amplifiers. This means virtually all critical parameters can be monitored using modules from the same system: Rotation speed monitoring, Synchronization monitoring, Transmitter power supply with programmable high or low alarm



The Application

Electrical machines perform elementary functions in automation technology, e. g., as drives for worm conveyors, conveyor belts, and pumps. They must be reliably monitored and controlled due to the significant repercussions in the event of a fault. Monitoring concepts are therefore required that can detect faults and trigger corrective measures. This task does not necessarily have to be performed by a process control system or PLC. An economic solution can be implemented by using isolator modules with trip relays.

The Goal

The objective of a monitoring concept is to prevent failure, overload, or malfunction, as well as reliably control safety-relevant parameters and shut down the affected device in the event of a fault. This allows danger to persons and the environment, damage to the machine, and a system shutdown to be prevented.

The Benefits

In any case, isolator modules must be used between field level and the controller due to long and thus interference-prone signal paths—either as isolated barriers to protect the hazardous area against too high an energy input or as signal conditioners for non-hazardous areas. If *GUT* temperature converters such as KFD2-GUT* with limit value outputs that can be parameterized are used as isolator modules, switch signals are already available on the module output without having to rely on a central controller.



The Solution

When measuring temperatures on electrical machines, the readings from the stator, bearings, and surfaces are particularly relevant. For example, they reflect anomalies in induction currents, lubricant pressure, or cooling. If the electrical machine is used as a drive for a pump, monitoring the temperatures of the fluids to be pumped can be an effective way to prevent the drive from becoming overloaded. If fluids have a solidification point above the ambient temperature, monitoring of the temperature can be used to delay the start-up of the pump until the viscosity of the fluid reaches operating level. The signals to be transmitted are continuously monitored by the module for under- or overruns of selectable trip values. If the set values are reached, defined processes are triggered: In the most basic of instances, this is a shutdown of the affected component.

For more information, visit:

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