Reliable Signal Conversion at High Ambient Temperatures

Signal conditioners guarantee dependable conversion and transmission of signals in the vulcanization process during tire manufacturing

At a Glance

- Dependable signal conversion despite high ambient temperatures
- The K-System product family has an extensive and flexible range of potential applications

The Application

During rubber production, natural rubber is treated using heat, as well as sulfur and other chemicals. This procedure is called vulcanization. In tire manufacturing, vulcanization takes place during the molding stage. The vulcanizing press is the last stage before the completion of the tire. The application of heat causes chemical reactions to take place and the pressure from the press gives the tire its profile and final shape. This process involves temperatures of between 160 °C and 200 °C in conjunction with pressures of 24 bar.

The press is monitored and controlled via a local host PC and the production plant's control room, which is also where historic data is stored.

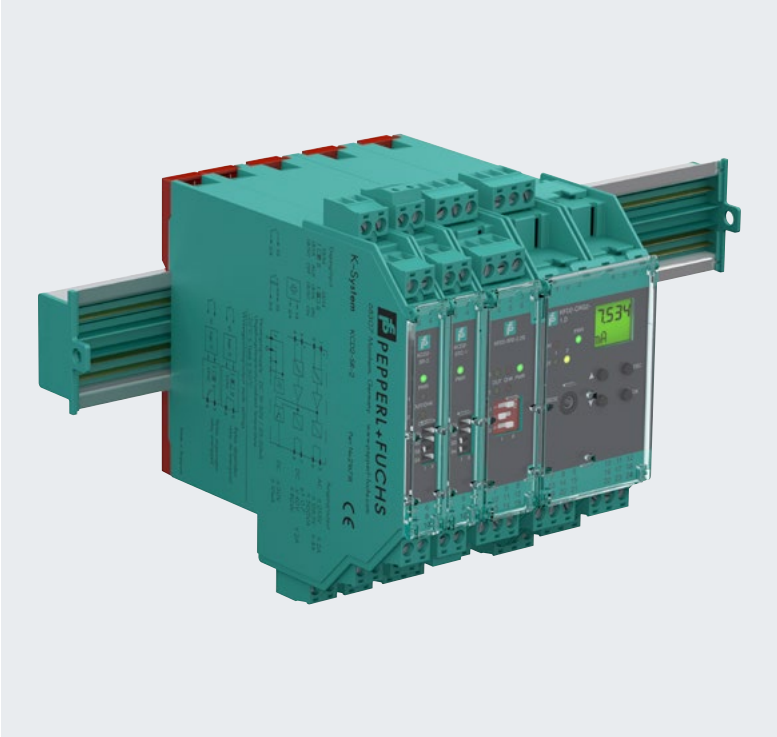
The Goal

The pressure and temperature measurements must be reliably converted and transmitted to the host PC and the control room. Resistance thermometers are used to measure the temperature. This signal must be converted into a 4 ... 20 mA signal. A head-mount transmitter, where the electronics are fitted directly onto the resistance thermometer, is not a suitable solution in this case because the electronics cannot withstand the high temperatures involved in the process. The measuring system must be very resilient and be able to function correctly despite the high temperatures.

The Solution

A switch cabinet and signal conditioners are a possible solution in this case. Various K-System signal conditioners could be used.

The loop-powered RTD signal converter KFD0-TR-1 can be used as a direct replacement for a head-mount transmitter. One key advantage in comparison to competitors' products is that this module is particularly robust in harsh ambient conditions, especially at high ambient temperatures.



When using a normal thermometer, the universal temperature converter KFD2-UT2-2 is also suitable. There is an additional advantage to this module: It can also function as a splitter, allowing the temperature signal to be used twice.

The Benefits

Signal conditioners in the K-System are very resilient to harsh ambient conditions and function correctly even at high temperatures. The extensive portfolio includes even more modules, such as trip amplifiers or signal splitters, making it possible to monitor all critical parameters using modules from the same system.

For more information, visit:
pepperl-fuchs.com/k-system