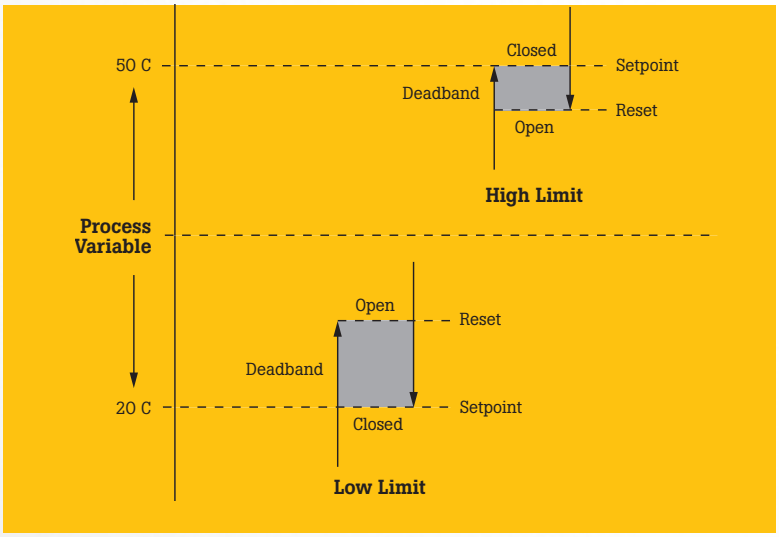
Temperature switch and controller testing in the field

Temperature switches and controllers are commonly used in small processes and in control loops where a programmable logic controller (PLC) or larger distributed control system (DCS) are not warranted.

Temperature controllers provide both switching capability based on rising and dropping temperatures, as well as a local indication of the measured temperature.

Most temperature controllers have some form of tuning, using damping and PID (Proportional, Integral and Derivative values) for smoothing out the measured process temperature, reducing variability.



The terminology around switches can be confusing. The set state of the switch is the action the switch takes when an input stimulus above or below a specified value is applied. This stimulus can prompt an action such as closing a switch, which in turn starts or stops a motor, or opens and closes a valve. The reset point is considered the relaxed state of the switch, which is typically referred to as "Normally Open" or "Normally Closed." This describes the default condition of the switch. Lastly, deadband is the band of temperature equal to the difference between the temperatures where a switch sets, and resets. See illustration at left.

Suggested test tools

712B RTD Temperature Calibrator

See pg 17

714B Thermocouple Temperature Calibrator

See pg 17

7526A Precision Process Calibrator

See pg 5

726 Precision Multifunction Process Calibrator

See pg 6

754 Documenting Process Calibrator

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