

Solution Note

Avoid Costly Downtime by Monitoring the Health of your Process Thermocouple



Worried about how well your process thermocouple is doing after repeated abuse of measuring the process variable? We all know that thermocouples “wear out” and just looking at them can’t tell you how much additional life can be expected from that thermocouple. This important information can help avoid costly process shutdown, rework or defective products.

Solution

Honeywell’s patented Thermocouple Health Monitoring function is like having a doctor resident inside the instrument, constantly monitoring the health of the connected thermocouple and alerting you to a potential problem before it happens. This capability is a standard feature of Honeywell’s UDC2500, UDC3200, UDC3500 Controller Line, the HC900 Modular Control Analog Input card and available in the X-Series paperless recorders.

The thermocouple health monitoring feature is designed to test the resistance of the connected thermocouple, and based on these results, the diagnostics firmware of the instrument determines if the thermocouple is still “good”. If the resistance of the thermocouple starts to change, the instrument continues to monitor the “health” of the thermocouple to determine if it continues to get worse. Preset levels related to the health of the thermocouple are in the instrument and are used to alert the user if the thermocouple continues to degrade. A warning of the thermocouple health and its deteriorating condition are displayed as part of the instrument’s user diagnostics, providing an early indication that the thermocouple should be replaced before it fails catastrophically, resulting in a process shutdown or defective product.

The controller or recorder provides an on-going status of the thermocouple and indication of the thermocouple’s health. The loop resistance is checked at 30 seconds intervals and significant increases in the loop resistance are interpreted by the instrument and used to determine the various degrees of thermocouple degradation.



The four stages of thermocouple health are:

1. Good
2. Failing
3. Failure Imminent
4. Failed (Burn-out)

The early warning stage is designed to give the user time to change the thermocouple before it actually fails. During this time, the system may be working as expected but the controller or recorder really knows that things are starting to degrade and action should be taken to avoid unscheduled downtime. By knowing the thermocouple’s health ahead of time, it allows you to maximize the life of the thermocouple, minimize on-going expenses of replacing good thermocouples before they fail and avoiding unscheduled failures of degraded thermocouples.

The Honeywell Advantage

The Thermocouple Health Monitoring function can save production downtime caused by thermocouple failures and problems caused by erroneous readings. No special tools or processes are required - it's built into the instrument measurements and diagnostics.



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For More Information

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