

## Electrical Interference

### APPLICATION



An RTD and Model TL transmitter were mounted externally on an environmental chamber with the RTD extending into the chamber to measure  $-70^{\circ}\text{C}$  storage temperature. Transmitter was connected to a controller for maintaining  $-70^{\circ}\text{C} \pm 2.0^{\circ}\text{C}$ . Everything worked fine until the output jumped off scale causing an alarm to sound. Resetting the system cured the alarm mode and the system worked okay until the next transient occurred.

### CHALLENGE



Interference can come from many different sources and as such can be difficult to pinpoint the exact cause. The random nature of this failure mode made it difficult to troubleshoot because there was no way to know immediately which fix worked. EMI (electromagnetic interference), RFI (radio frequency interference), ground loops, and static charge build-up are the typical suspects.

## RTD and Transmitter



Model TL



Model 200A

### ▶ Two wire RTD transmitter and Series 200 RTD

### SOLUTION



First step was to verify the performance of the RTD and transmitter in the laboratory to be sure they met specifications. Next the RTD was reinstalled along with the Model TL transmitter. The transmitter was mounted on a rubber pad and attached with plastic screws to electrically isolate it from the process. A ground wire was run from near the transmitter housing to an earth ground to drain off any stray voltage or static charge buildup. Finally the shielded cable from the RTD to transmitter was verified to be left open (ungrounded) at the RTD and grounded back at the transmitter housing. This would allow any RFI or EMI to drain harmlessly to ground.

These are the most likely suspects that can cause erratic measurements from an RTD or thermocouple. Sometimes the shotgun approach to solving a measurement problem is the most efficient method as in this case.