Isolate and split the signal for furnace SCR control

APPLICATION A177

Type of Company: Manufacturer, Specialty UHT Materials

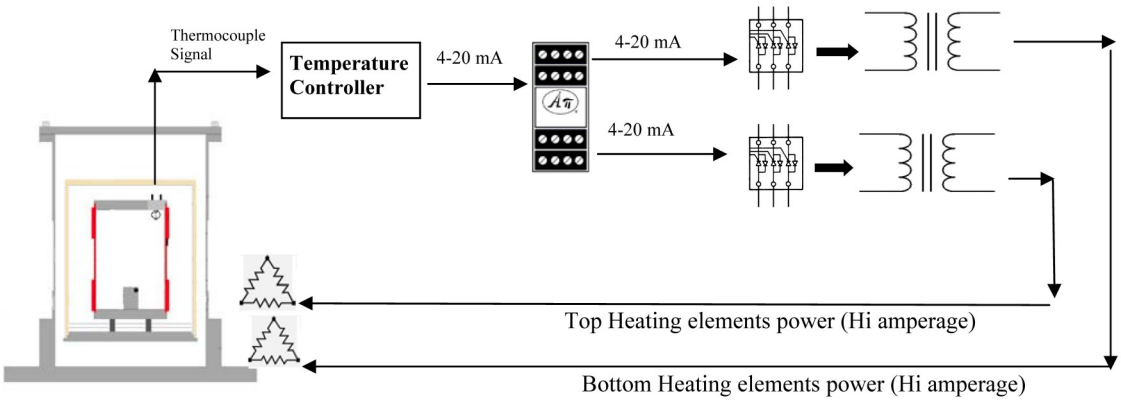
Location: New Hampshire

An ultra-high temperature (UHT) continuous furnace system is used in the manufacture of many high-density, ultrahigh temperature materials. These specialty metals and compounds are used in an array of defense and industrial manufacturing applications. Many UHT furnaces use SCR (silicon controlled rectifier) power control for the heating elements. The use of an SCR power control offers the most precise means of controlling electric heaters. Heater life is extended, production is increased and product quality is improved. The process requires use of two banks of SCRs, one for the top heating elements and one for the bottom heating elements.


Photo by Cjp24

The Engineering Issue

- The banks of SCRs fire high-amperage transformers for the furnace heating elements. The temperature controller does not have enough current drive capacity to drive both SCR banks.



The APD 4393 IsoSplitter® is a factory-calibrated unit that accepts the 4-20 mA signal from the temperature controller and gives them two 4-20 mA output signals. Each output signal has 1000 Ω drive capability which gives enough drive for controlling the 3-phase SCR power modules in the upper and lower zones independently. The unit also provides full 3 way isolation so the end result is more accurate control of the power applied to each temperature zone.

Problem. Solved.

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