Six Ways to Use a Six-way Thermocouple Switch

Have you ever needed a quick way to measure multiple thermocouples nearly simultaneously? You could use one of the many multi-input thermocouple data loggers that exist but that is often more complication than is required. What if you're working on a process line or inside an engine bay where the environment isn't laptop friendly? There are many circumstances where you would just like to compare several temperature readings quickly without waiting for the laptop to boot up and configure some software.

The TEGAM 819A series of thermocouple thermometers combined with an 8012 Thermocouple Switch is the fastest and easiest way to measure up to 6 thermocouples.

The 819A is a very versatile tool in the crowded world of hand held thermocouple thermometers. It has competitive features such as a high accuracy (+/- 0.1% ± 1°F), simple one button function selection and thermocouple fault monitoring. It also has a single piece keyboard that not only resists water but readily promotes cleaning from dirt or food particles. The models 820A and 821A, add dual inputs, data logging and temperature trending indicators.

Each of these meters can be expanded to read 6 thermocouple inputs with the 8012, 8022 or 8052 switch boxes. Respectively these are type K, J and T. They quickly plug into the 819A series thermometers and present 6 mini thermocouple connectors that are selected by a single rotary switch. TEGAM offers a convenient one part number kit for popular combinations that include the thermometer, thermocouple switch and six thermocouple probes at a reduced cost from purchasing the items seperately.

Here are a couple examples of how others have used the 6 input thermocouple switches to conveniently and inexpensively measure multiple temperature points.

Annealing Furnace

A manufacturer of brass shell casings improved their yield by monitoring multiple points in the annealing furnace for consistent temperatures. The combination of a thermometer and 8012 switch box provided an accurate and convenient way to evaluate the process and permit the operator to monitor it as well.

NASCAR Engine Builder

Race teams and engine builders are well financed and have a host of data acquisition equipment available. However, to quickly test an idea or configuration some use TEGAM thermometers and thermocouple switches to test a collection of engine components such as water pumps, alternators and oil pumps exposed to the stresses of the under hood environment.

Pest Control
Many exterminators of bed bugs avoid the use of dangerous chemicals by elevating the interior temperature of a house above the point where the bed bugs can survive. This requires monitoring multiple rooms in the structure to verify that a sufficient temperature is achieved and sustained long enough to kill all of the pests. The thermometer and thermocouple switch box combination save many steps and trips around the work site.

Electrical Switchgear Design
Design and production validation of a new piece of electrical switch gear includes measuring the heat rise at various points in the assembly under different load conditions. While final testing results do have to be recorded with data acquisition equipment, many pretests and configurations are necessary before the final run. A thermometer and thermocouple switch box are much more convenient for investigating the correct test setup prior to a lengthy test regimen.

Environmental Test Chambers
Validation of many product designs requires temperature and humidity cycling in an environmental chamber. Variations in product geometry, materials and size require multiple points of temperature monitoring to certify that the all areas of the product reached the temperature extremes called for in the test profile. A thermometer and thermocouple switch box enable the test engineer to conveniently scan multiple points without constantly unplugging and plugging thermocouple probes. The work is completed faster and there is less wear on the equipment.

The Ultimate Barbecue
Barbecue aficionados don't use gas, they use charcoal and time. Lower temperatures (225-250°F) over long periods of time (4+ hours) is the recipe that wins contests. Competitive smokers and grillers use a thermostatically controlled blower to regulate the cooking temperature. Larger commercial grills can end up with temperature variations as the coals are consumed at different rates. A thermometer with a switch box can be used to detect the areas of the coals which need replenishing thereby ensuring a more consistent set of ribs.