

APPLICATION NOTE 4

***BOILER TEMPERATURE
MONITORING AND
MAPPING***

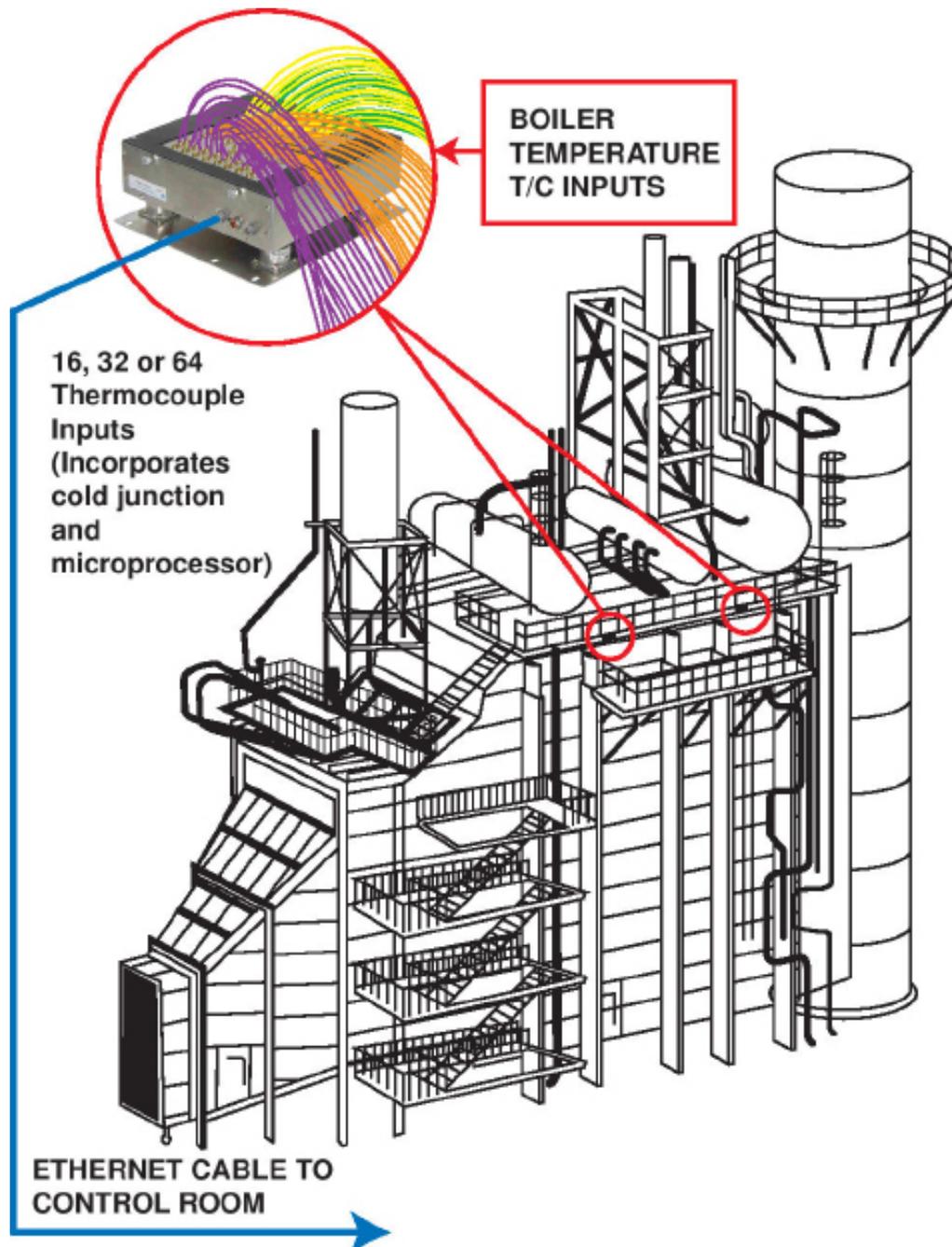
TEMPERATURE MEASUREMENT



Scanivalve

GENERAL DESCRIPTION

Large boilers typically use many thermocouples to monitor and map internal piping temperatures. The purpose is to maintain efficiency and uniformity of temperature. This is especially true in boilers used in power plants. In many cases there are hundreds of thermocouple wires bundled and strung through conduit. These large, expensive bundles can sometimes be hundreds of feet in length going to the control room. Scanivalve's Digital Thermocouple Scanner described on page 2 eliminates all of this wiring by placing the intelligence near the boiler.



TEMPERATURE MEASUREMENT SOLUTION

The DTS4050 Thermocouple Scanner is an intelligent, one-box solution that can eliminate long thermocouple wire bundles. By mounting the DTS module in the area of the boiler, the thermocouple wires can be kept short, thus minimizing noise problems. The thermocouple signals can be converted into engineering units of degrees Celsius, Fahrenheit, Rankine or Kelvin. Data is output via Ethernet TCP/IP or UDP. Therefore, instead of bundles of thermocouples hundreds of feet in length, there is only a noise immune Ethernet cable going back to the control room.

This represents a large initial savings in thermocouple wire, labor to install thermocouple wire into conduits, and ease for troubleshooting each channel.

INTELLIGENT THERMOCOUPLE SCANNER

The DTS4050 Thermocouple Scanner incorporates a microprocessor and a 22 bit A/D for each thermocouple input. In addition, it has an isothermal block incorporated for the Uniform Temperature Reference (UTR). Therefore, no patch panels or external cold junctions are required. This rugged module accepts 16, 32, or 64 pairs of type E, J, K, N, R, S, & T thermocouples. The DTS4050 uses stored NIST thermocouple conversion tables to convert mV inputs to engineering units of degrees Celsius, Fahrenheit, Kelvin or Rankine. Each input channel of the DTS4050 may be configured for a different T/C type.



COMMUNICATION

The DTS4050 modules use industry proven Ethernet communications. Operation is controlled via a host computer. Direct 24/7 communication can be made via Telnet, Scanivalve LabView drivers, our free ScanTel software or an OPC server.

Scanivalve

**1722 N. MADSON ST.
LIBERTY LAKE, WA 99019**

**PHONE: 1-800-935-5151
1-509-891-9970
FAX: 1-509-891-9481**

**SCANCO@SCANIVALVE.COM
WWW.SCANIVALVE.COM**

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