High Density Temperature Measurement Saves Capital Costs on Upgrader Expansion Project

RESULTS

- Decreased capital expenditure
- Reduced the risk of damage to capital equipment
- Improved plant safety
- Reduced the risk of unplanned shutdowns

The high density architecture provided by the Rosemount 848T reduced capital costs related to installation and materials.

APPLICATION

Skin temperature monitoring of pipes, vessels, and pumps

Application Characteristic: Oil upgrader unit operating temperatures ranging from 1000 to 1300 °F.

CUSTOMER

A North American oil sands upgrader

CHALLENGE

This customer needed to monitor the skin temperature throughout its upgrader facility. The design of the facility included more than 3,000 temperature measurements to reduce the risk of thermal shock to their newly installed operating equipment.

Safety restrictions required that every piece of equipment in this unit be brought up to the operating temperature prior to startup, in order to prevent thermal shocking of the piping, pumps, vessels, and other mechanical parts. The instrumentation used in the expansion needed to be compatible with the legacy host system infrastructure, and provide a cost effective architectural solution.

This customer wanted to avoid unnecessary capital and operational costs in their new facility. A traditional point-by-point temperature architecture would be cost prohibitive for this customer's expansion project. Furthermore, plant wide protection of personnel and capital equipment were a priority to ensure safe operations, and to reduce the risk of unplanned shutdowns.

Rosemount 848T

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SOLUTION

Emerson installed 242 Rosemount 848T FOUNDATION™ fieldbus High Density Temperature Transmitters. This solution enabled a significant cost advantage, and was easily integrated into the legacy host system. The 848T transmitters were used for 2,000 of the 3,000 total temperature points. They measure eight temperature points with one device, reducing the amount of wiring needed to communicate the measurements to the host system.

For the remaining 1,000 single point temperature measurements, the Rosemount 644 and Rosemount 3144P Temperature Transmitters were installed based on the critical nature of the application.

The high density architecture provided by the 848T reduced capital costs related to installation and materials. The technology and ease of implementation built into the 848T protected capital equipment from damage associated with thermal shock. Finally, risks related to safety and unplanned shutdowns were minimized due to the added visibility to plant operations.

RESOURCES

Rosemount Temperature

http://www.emersonprocess.com/rosemount/products/temperature/m848t.html

Rosemount 848T Products Data Sheet

http://www.emersonprocess.com/rosemount/document/pds/4697b00n.pdf

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00830-0800-4697, Rev AA