



Project Profile – Optimization of HMS Using DigiTrace® Control & Monitoring Systems

As an inventor of self-regulating heat-tracing products, Tyco Thermal Controls is a world leader in providing heat-tracing solutions. The billionth foot of self-regulating heat-tracing cable was installed at the Bridgeport Ethanol Facility.

“We have used Raychem® products and Tracer® construction services in the last three ethanol plants built by ICM. The Raychem products are very reliable as we have never had any maintenance issues with heat-tracing and the Tracer services are top notch as well. We are very happy to be a part of Tyco Thermal Controls’ history – a history of one billion feet of safe, sure heat!”
–Dave Kramer, President and General Manager of the Bridgeport Ethanol plant.

Project Description

- ❑ **Client/Owner:** Bridgeport Ethanol
- ❑ **Location:** Bridgeport, Nebraska - USA
- ❑ **Type of Applications:** Freeze Protection, Process Temperature Maintenance in Hazardous Locations
- ❑ **Products Used:** DigiTrace® 200NI, 200NG, HTPG, 920 Control and Monitoring Systems, Approx. 6000 ft of Raychem® BTV, QTVR, XTV, and VPL Heat-Tracing Cable Systems
- ❑ **Number of Circuits:** 35
- ❑ **Date Initiated / Completed:** May 2008 / November 2008
- ❑ **Contract Scope:** EPC for Electrical Heat-Tracing (no insulation)



Project Details

Bridgeport Ethanol is a green-field 40-million gallons/year ethanol production facility. Their heat-tracing application needs include freeze protection of water lines, tank heating, and temperature maintenance of syrup/silage/caustic lines. For this project, Tyco Thermal Controls completely engineered, procured and installed the necessary heat-tracing systems that uniquely leveraged its portfolio of control and monitoring solutions to meet the different application needs while reducing the total cost of the heat management system.

Raychem®

TRACER®

DigiTrace®



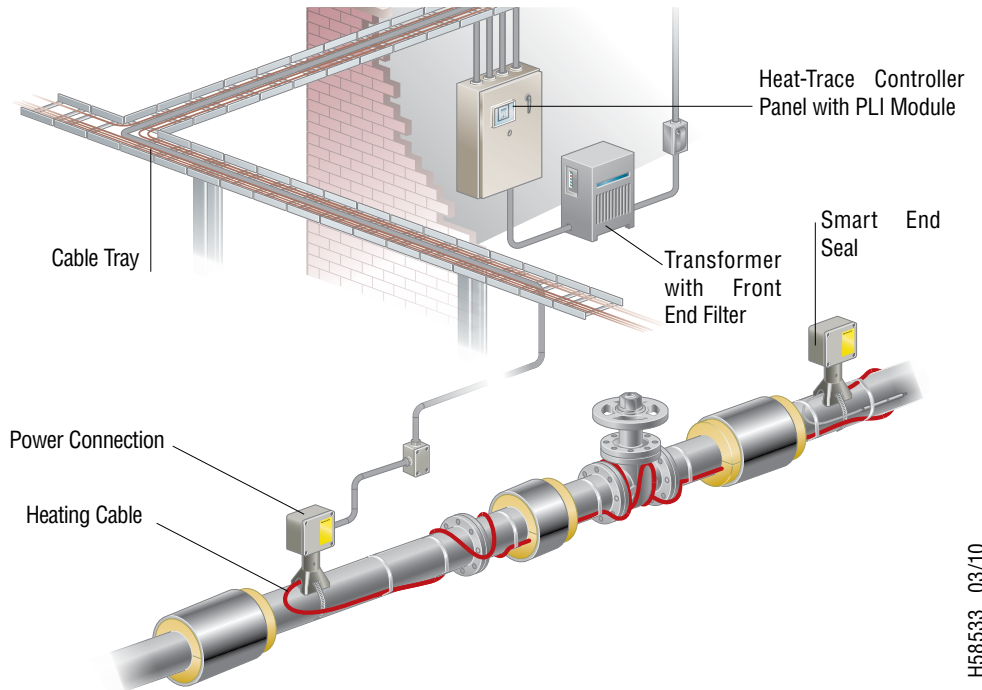


The DigiTrace control and monitoring solutions were leveraged as follows:

For some freeze protection and broad temperature maintenance applications, we used the DigiTrace 200NG with proportional ambient sensing control (PASC). In PASC the power to the heat tracing is proportioned based upon on the ambient temperature. Due to the use of PASC algorithm we were able to reduce the operating costs by 75% from that of the standard ambient sensing controller.

For freeze protection of the water lines and tank heating, we selected a combination of the DigiTrace 920 and HTPG local control system to control and monitor some remote circuits. These areas were respectively 800 feet and 450 feet away from the centralized control panels and would have required 2/0 power wires due to the voltage drop. By using a local control system, the conduit and wiring costs were greatly reduced.

With decades of industry experience in designing and installing heat-tracing systems, Tyco Thermal Controls can provide a full suite of optimization strategies customized for the application directly reducing the TIC/TOC and improved schedule.



For critical temperature maintenance applications, we chose the DigiTrace 200NI with line sensing control. To reduce the RTD wiring costs, we used the DigiTrace power line interface technology (PLI) and Smart End Seals (SES) to transmit temperature and continuity data over the heating cable conductors. The use of PLI technology eliminated the estimated \$40,000 of RTD wiring costs.

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