

Heat Trace Control System

Instrumentation & Controls

**CURTISS -
WRIGHT**

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Curtiss-Wright's Heat Trace Control System (HTCS) is a modern analog system designed to control multiple runs of safety-related 120 Vac heat tracing in a nuclear power plant. By designing the HTCS to avoid any software or programmable devices, Curtiss-Wright has greatly simplified the licensing process and extended pre-obsolescence life. Each HTCS unit consists of 3 parts: a Controller Module, a Meter Module, and a Power Module.

The Controller Module

The Controller Module monitors the temperature of a piping run, compares it to the set point, and determines if heat tracking should be on or off based on this data. Each Controller Module is assigned to one heater with either an independent or shared set point; a separate safety cutoff turns off the heater should the piping reach 20°C above the set point, and easy-to-read LEDs on the faceplate of the module show the status of the normal and safety outputs.

The Meter Module

The Meter Module services any number of Controller Modules. Pushbuttons on the Controller Modules send either the present pipe temperature or the present set point to the shared Meter Module, allowing for temperature and set point monitoring and adjustment. The Meter Module includes provisions for calibration using a local source, making it highly accurate and accessible.

The Power Module

The Power Modules are structured like Controller and Meter Modules, but with a different rear connector. Each contains a solid state relay for normal control of the heaters, assuring long life and no contact degradation. By utilizing an electro-mechanical relay that is normally de-energized with its contacts closed for its safety cutoff, the Power Module greatly increases the reliability of its safety cutoff.



Specifications

Controller Input	PT100 RTD (Others available)
Controller Temperature Range	10°C to 230°C
Controller Accuracy	± 1.5°C / ± 2.7°F
Controller Response Time	< 1 second
Meter Display Accuracy	± 1.0°C / ± 1.8°F
Heater Power	115 Vac, 0.4A to 15 A
Heater Power Relay	solid state, NO
Heater Cutoff Relay	mechanical, NC
Environmental Qualification	IEEE-323 mild environment
Seismic Qualification	IEEE-344
EMC Qualification	EPRI TR-102323
Input Power	115 Vac ± 10%, 60 Hz ± 1 Hz

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