

## Heat Transfer Fluid Monitor

### Applications:

- Heat Transfer Fluid Flow Monitor
- Heat Transfer Fluid Flow Switch
- Heat Transfer Fluid Level Monitor
- Heat Transfer Fluid Level Switch
- Heat Transfer Fluid Detection

### Application Background:

Industrial processes that require super heating of a liquid product being produced typically use heat transfer fluids like Paratherm®, Therminol®, DowTherm™, DuraTherm®, etc. These fluids can operate at temperatures exceeding 725°F (385°C). Monitoring the flow and level of these fluids at the higher process temperatures can be a challenge for many classical instrumentation technologies.

### Application Solution:

There are many liquid flow and level monitoring technologies including: paddle/flapper types, turbine, site glass, vibrating forks, capacitance, and conductance probes. All have proven to work with varying degrees of success. Some rely on operator's time and attention, while some have mechanical parts and are prone to wear, hang-up, and failure. Still other electronic type probes require conductive fluids or fluids of specific capacitance. Most of these classical techniques have problems at the higher operating temperatures.

A better solution for heat transfer fluid flow and level detection at a specific point in a heat transfer system is the Thermal Differential Switch. The TD switch has two thermal sensing devices (RTD's) encased in stainless steel tips. One sensor detects the temperature of the liquid while the second has a small current applied to create a thermal differential above the liquid temperature. The differential temperature between air and liquid and liquid flowing and not flowing is different. Therefore detection of an uncovered sensor probe and a probe covered by the heat transfer fluid or detection of flow and no flow is a simple, reliable technique as a point flow or level monitor.

With a single process connection into a pipe line either through a MNPT or flange fitting, a TD probe can be strategically located to monitor for flow or level of the heat transfer fluid. When the probe detects the liquid, the TD switch activates a relay output to confirm that flow is occurring or that the fluid has reached a certain level point in a tank or vessel.

Any of the Delta M Corporation microtuf® and Versa-Switch® liquid level or flow switch product models can provide a solution in these application. Both models can be configured for process operating temperatures up to 850°F (458°C). The dual channel Versa-Switch® has the added feature of a second relay contact for a Failure Alarm (FA) option to watchdog the unit for power failure or interrupt, sensor failure, electronics failure, etc. This combination provides for the best security and assurance that the point level or flow switch is ready at all times to provide for the heat transfer fluid flow or level confirmation.

See the products section to select your model and configuration to meet your specific needs.