

Emergency Safety Shower Monitor

Applications:

- Emergency Safety Shower Monitor
- Emergency Safety Shower Flow Switch
- Emergency Safety Shower Activation Indicator
- Safety Shower in Use Detector

Application Background:

Emergency Safety Showers are a good idea and also required in commercial and industrial operations where hazardous fluids are used or being produced. A simple shower head and a pull chain to a valve to release the water is all that is needed to provide the safety function. But there can be more to it if the victim of a leak or spill activates the shower but is in need of more assistance. What is needed is an alarm or notification signal that identifies the location of the incident so that others can come rapidly to assist. In other words, the emergency safety shower should have a monitor that indicates that it is in use.

Application Solution:

There are many liquid flow monitoring technologies including: paddle/flapper types, turbine, site glass, capacitance, and conductance probes. All have proven to work with varying degrees of success. 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.

A better solution for water flow detection in the emergency safety shower 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 water while the second has a very small current applied to create a thermal differential above the water temperature. The differential temperature between flow and no flow is different. Therefore detection of flow across the sensor probe and a probe without flow is a simple, reliable technique for a water flow 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 of the water in an emergency shower system. When the probe detects the flow of water, the TD switch activates a relay output to confirm that flow is occurring. This relay output can be tied into a local alarm horn/flashing light and also hardwired to a monitoring panel in the plant control room or safety response center.

Any of the Delta M Corporation microtuf® and Versa-Switch® liquid level product models can provide the solution in this application. 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 flow switch is ready at all times to provide for the emergency safety shower monitoring application.