DELTA m CORPORATION

Thermal Differential Theory of Operation

Liquid level

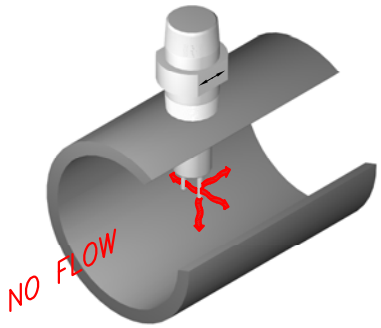
Note:Probe tips contain matched RTD's one of which is self-heated with about 400mw of power. The other provides temperature compensation

The heated RTD responds to the heat transfer coefficient of the media with which it is in contact. Gases with low heat transfer result in a high differential temperature between the heated and reference tips

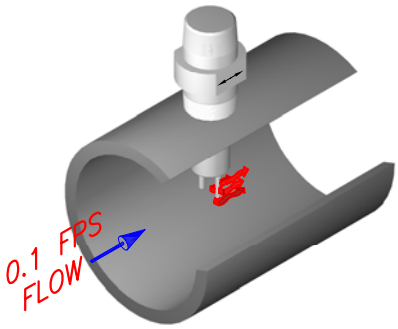
When the heated tip makes contact with a liquid with higher heat transfer the differential temperature drops and the lower differential results in a switch trip to indicate liquid

Gas Or Liquid Flow

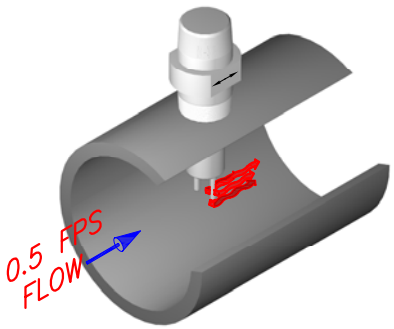
Note:The fluid velocity and heat absorption ability determine the differential between the tips. Their combination determines the measurable velocity. In water velocities from 0.01 to 5 FPS are measurable, whereas in air velocities of 0.1 to 500 FPS can be measured



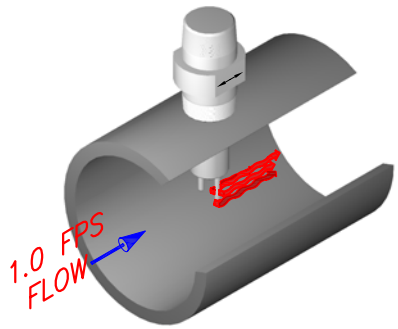
For a no flow condition the thermal differential between the two tips is high because of relatively low heat transfer.



Flow across the tips decreases the thermal differential because of the higher heat transfer of flowing fluids. This differential is compared with the trip point.



When the lower differential matches the customer select flow velocity trip point (set point) the switch relay and red LED are tripped.



When flow is above the trip point the differential is smaller than at the set point and the relay and Led remain tripped.

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