

Surface Mount Alternate

APPLICATION



There was an immediate need for a surface temperature measurement on a pipe in a hazardous atmosphere with better than $\pm 1.0^{\circ}\text{C}$ accuracy. All instruments in the area had to be rated FM Class I Division I Group D at a minimum. The measurement point was an add-on after the initial process start-up and there was no way to easily cut another opening in the piping for a standard explosion proof rated temperature measurement assembly.

CHALLENGE



The challenge was to design a surface mount sensor using existing rated components and do it in just a few days. Accuracy of $\pm 1.0^{\circ}\text{C}$ was required and that can also be a challenge to achieve with a surface mount. Many purpose built surface mount RTDs and thermocouples do not carry CSA/FM or similar hazardous ratings because their configurations do not conform to the requirements.



Model 200A10A5A115/AFM

FM Rated Assembly

SOLUTION



The best (and only) solution appeared to be adapting a standard FM rated assembly to a surface mount arrangement.. After some head scratching it was decided that a direct immersion style, 1/4" diameter RTD with 1/2" NPT process connection threads could be clamped to the piping with a couple hose clamps. Support for the connection head was achieved with an angle bracket having a 1/2" NPT half coupling welded to it and clamped to the pipe. The probe threads into the half coupling and is bent in a dog-leg to contact the pipe. Adding insulation over the sensor to minimize ambient temperature affects on the sensor, completed the installation. The assembly is rated FM Class I Division I Groups BCD.

For more information or assistance with your application please contact Applications Engineering at 800-328-3871 ext. 13.