

APPLICATION NEWSLETTER

PROBLEM: Tank Farm Fluid Level Measurement

The plant operations engineer for a large producer of lubricants wanted to replace the Meriam Manometers used for tank level measurement. He was told to remove all instrument fluids from the plant, so the manometers had to go.

He had several concerns about replacing the manometer. Cost was one. Also, the replacement had to read out in the same units as the manometer: inches of 2.95 specific gravity fluid. This would save the expense of changing the charts and measurements used for batching and mixing their lubricant.

SOLUTION: The plant engineer chose the Series 2110P Smart Gauge for several reasons. The gauge could read out in inches of 2.95 fluid. The gauge would provide an easy to read display for technicians loading the tanks. There would be no significant installation changes because the gauge utilized the existing manometer plumbing and dip tube. Finally, it was less expensive than competing technologies: transmitters or ultrasonic devices. Costs were \$3000 per tank using

the DP transmitters with a digital readout. The ultrasonic sensors required larger tank openings and cost \$6000 per tank. This compared to \$1000 per tank for the 2110P Gauge with accessories.

Because the tank was pressurized, a differential pressure Digital Gauge was needed. This allowed an equalizing pressure line to be used on the low pressure side of the gauge to cancel out the effects of overlying pressure on the level measurement. The 2110P gauge was sold with a model 965B5 constant differential pressure regulator and bubbler. This device prevents the air flow rate to the tank from getting too high when the tank level is low. It also increases the bubbler pressure as the liquid level in the tank rises, preventing liquid from traveling up the dip tube and into the gauge.

Technical Note: If the tank is vertical and is always filled with a liquid of a constant specific gravity, the 2110L gauge could read out in gallons, pounds, cubic feet, or other engineering units. In this application, the liquid within a given tank varied. Therefore, a pressure readout in inches of 2.95 fluid was more practical.

