

Liquid Natural Gas Level Measurement Solution for Separation in Fractionation Plants

Traditionally displacers are used in the separation process. Common problems to displacers are iron oxide deposit accumulation on the displacer body. This causes the displacer measurement to indicate a lower than actual level, which have caused overflow situations and fire hazard conditions.

RF Admittance technology addresses all of the problems of mechanical displacers with a technology that measures Interface level independent of specific gravity or density and has no moving parts to wear out or break.

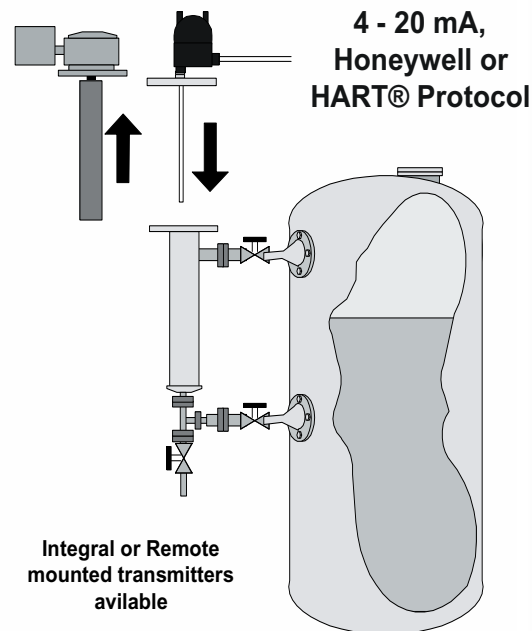
Natural Gas Processing starts at the wellhead where gas and entrained liquids are removed for primary separation. The Liquid Natural Gas enters a Fractionation Plant and goes through several steps to have the liquids, mostly water and oils, removed from the gas.

The separation process removes the liquids (condensate), sulfur (typically using Amines), and other impurities from the gas.

Primary separation consists of a screen that the natural gas liquids pass through to remove any particulates that are in the liquid. This usually runs at pressures between 100 and 170 psig.

The second phase of separation consists of a Demister membrane that removes the gas from the liquid. The gas is then sent on at pressures between 50 to 300 psig to a pipeline while the remaining liquids are fractionated to further remove propane, butane, ethane, and light hydrocarbon liquids for either storage or sent via pipeline to marketing terminals. At the end of the process, additives such as mercaptans go in the gas to give it a noticeable odor, for safety reasons.

To remedy the problems with displacer level measurement inaccuracies, and ongoing maintenance, several successful applications have used RF for the interface measurements.



A mid west Liquid Natural Gas Fractionation Plant standardized on AMETEK Drexelbrook to remedy their high maintenance Displacer problems. The high cost of displacer maintenance and the potentially dangerous fire hazard that results if not maintained prompted a Fractionation plant to experiment with RF Level technology as a possible solution. After 5 years of successful evaluation the Maintenance Supervisor stated "We will soon have all Drexelbrook level transmitters at our fractionation plant". The Drexelbrook solution has no moving parts and remains unaffected by coating deposits on the sensing element. Systems are offered for installation in external chambers with a head flange for many commonly used Displacer cages. Drexelbrook is preferred by Fractionation plants for its ability to accurately measure liquid natural gases over ranges as little as a few inches without the needed periodic maintenance that come from Displacers.

Drexelbrook's patented RF Admittance technology, proven in the Liquid Natural Gas Fractionation market for over 30 years, has provided solutions to continuous level measurement applications on Propane, Butane, Ethane and Interface level.

Drexelbrook offers:

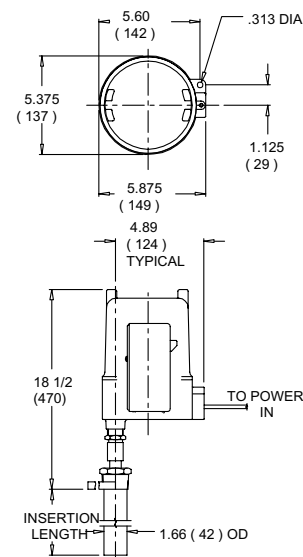
- Sensing elements compatible with all process fluids.
- No moving parts, eliminating periodic maintenance.
- Accuracy unaffected by density, pressure or temperature variations.
- Factory precalibration.

Fractionation plants have realized cost savings through reduced instrument maintenance and high reliability.

System Specifications:

Output Signal	4-20, HART or Honeywell Protocol
Power required	24VDC, 2-wire
Std. Sensor Temp. & Press. Limits	1000 psi @ 100°F 500 psi @ 300°F
Max. Span	Unlimited
Accuracy	1% of Span
Response time	less than 1 second
Vessel Mounting	1 1/2" NPT or Flange

System dimensions:



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