I/A Series

IMV31 Multivariable Level Transmitter

Description

Even when fluid density varies, the Foxboro IMV31 multivariable transmitter provides accurate tank level measurement. It delivers that accuracy in both open (vented) or closed (pressurized) vessels.

The technology behind this superior density-compensated level transmitter is based on hydrostatic measurement and advanced multivariable sensing technology. The transmitter uses onboard, continuous differential pressure, pressure and temperature measurements to compensate for liquid and vapor density changes, so it can transmit 4 to 20 mA and digital output signals precisely proportional to tank level.

The IMV31 uses this cost-effective method to compensate output for changes in both vapor and liquid densities, in the tank and in external dry or wet legs. Its multivariable design consolidates multiple measurements in a single device, minimizing the number of transmitters required. It also includes HART® digital communications.

Results: increased accuracy and reliability with reduced wiring, installation and inventory costs. The Foxboro IMV31 density-compensated level transmitter is ideal for measuring boiler drum level and other applications where fluid densities are affected by variations in pressure and temperature.

Features / Benefits

- Accurate tank level measurement
- Compensation for fluid density
- Usable for open or closed tanks
- Based on hydrostatic measurement and advanced multivariable sensing technologies
- Use of differential pressure, pressure and temperature measurements to compensate for liquid and vapor density changes
- Compensation for vapor and density changes in both vapor and liquid in external dry or wet legs
- 4-20mA output with HART digital communications
- Ideal for critical applications such as boiler drum level
- Also ideal for many other fluids which have significant and predictable density variations with pressure and temperature
- Used with nearly any height tank or liquid density, and pressures to 10 MPa (1500 psi). Higher pressure ratings available on request.
- Complete configuration capability with Model PCMV configurator, which has an extensive fluid properties database.

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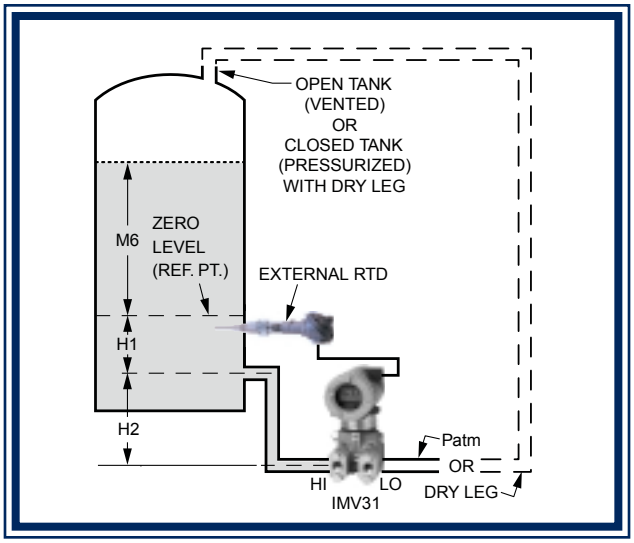

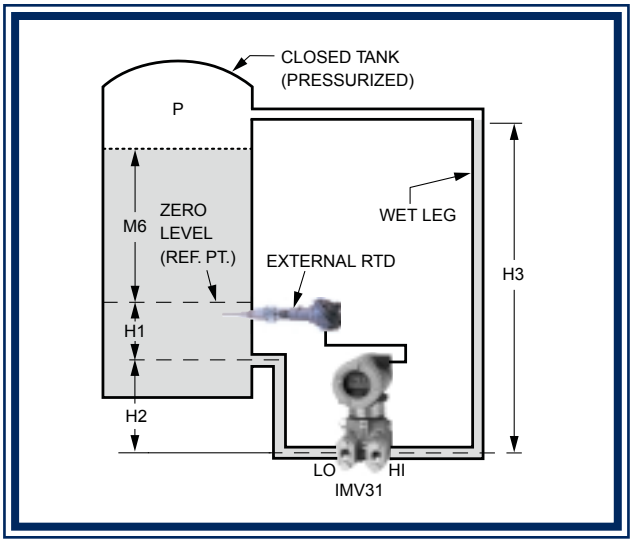

Specifications

Ranges (available combinations of DP and AP)

Sensor Code	DP (a)		AP	
	inH_2O	kPa	psia	MPaa
AG	0-3 to 0-30	0-0.75 to 0-7.5	0-10 to 0-500	0-0.07 to 0-3.4
BD	0-2 to 0-200	0-0.5 to 0-50	0-3 to 0-300	0-0.02 to 0-2.1
BE	0-2 to 0-200	0-0.5 to 0-50	0-30 to 0-1500	0-0.21 to 0-10
CD	0-10 to 0-840	0-2.5 to 0-210	0-3 to 0-300	0-0.02 to 0-2.1
CE	0-10 to 0-840	0-2.5 to 0-210	0-30 to 0-1500	0-0.21 to 0-10

(a) Elevated and suppressed zero ranges are also acceptable — refer to product specification sheet for details.

Calculations and Outputs

- Liquid Level
- Tank Pressure
- Tank Liquid Density
- Differential Pressure
- Tank Liquid Temperature (from external RTD)
- Transmitter Temperatures

Any of the first four can be assigned to the 4-20 mA output signal.

Density Calculation

Density calculation requires that the fluid be listed in the configurator database or have a known relationship between pressure, temperature, and density that can be entered into the configurator.

Up to four separate densities are calculated, depending on application (liquid and vapor in tank, liquid in external leg H2 and liquid or vapor in external leg H3).

Exceptionally High Performance

- Level Accuracy to ±0.3% of maximum level.
- Tank pressure and DP accuracy to ±0.05% of span.

Boiler Drum Level

This application is supported by a configurator selection for ease of setup. Drum temperature can be from an external RTD or can be the saturation temperature at the measured pressure, as configured.

External wet leg temperature source is configurable to be the external RTD, one of the internal transmitter temperatures, or a user-entered constant.

Product Specification Sheets

IMV31 Transmitter: PSS 2A–1C15C
PCMV Configurator: PSS 2A–1Z3F

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