

PRESS ARTICLE

UFM 3030 - Step into the new third dimension!

KROHNE introduces UFM 3030 the newest revolution in liquid ultrasonic flow metering. The UFM 3030 is a universal flow meter ideal for many industrial process applications in the (petro-) chemical, oil, water and wastewater industries. With the introduction of this three beam inline ultrasonic flow meter, KROHNE proves again to be a technological leader in solving customer flow metering problems. In the late nineties KROHNE successfully launched ALTOSONIC V, the first multiple beam UFM for custody transfer of liquids.

Fast growing ultrasonic flow meter market

The ultrasonic flow meter market has developed rapidly and has seen a significant growth. Reputed market research companies, like ARC, claim the UFM market is the fastest growing flow meter market and expect explosive growth. The recent publication of the draft standard: "Measurement of liquid hydrocarbons by ultrasonic flow meters using transit time technology" by the American Petroleum Institute (API) is expected to further boost the market for liquid inline flow meters.

High performance

Multiple beam inline ultrasonic flow meters (UFM's), with five and recently also with three beams, caused a major breakthrough in accurate flow metering. The high accuracy ($< \pm 0,5\%$) and repeatability ($\pm 0,2\%$) is the result of a combination of the number of paths, the configuration of the paths and the use of sophisticated algorithms. The paths are placed in parallel thereby covering a larger part of the flow profile. Other developments contributing to the improved accuracy, repeatability and stability of UFM are advanced Digital Signal Processing (DSP) and innovative patented sensors. It is KROHNE's philosophy to calibrate each flow meter that leaves the factory by means of wet calibration.

Universal flow meter

Extended capabilities have turned the ultrasonic flow meter into a universally applicable flow meter for a very wide spectrum of applications. With a robust sensor construction ultrasonic flow meters are able to handle extreme temperature and pressure ranges encountered in industrial processes.

With digital communication even more flow- and process-related data can be communicated between the flow sensor and the control system. A benefit of ultrasonic flow meters is that the available data can be used to yield more than information on volumetric flow only, e.g. the calculation of nett (corrected) volume flow rate (according to API 2540) and mass flow in combination with a pressure and or a temperature input. For this a flow computer is not necessary, as the functions are combined in the converter. In addition, the sound velocity of a medium can be generated for liquid identification and interface detection. The new generation ultrasonic flow meters have improved performance with entrained gas, solids and heavy attenuation, due to intelligent Digital Signal Processing (DSP).

Easy to engineer

UFM 3030 offers all the advantages of transit time, inline, ultrasonic flow meters. Ultrasonic flow measurement is independent of conductivity, viscosity, temperature, density and pressure. Another benefit of the 3-beam ultrasonic flow meter is its large diameter range (1" to 120") and high turndown ratio. UFM 3030 begins to measure from zero flow.

Easy to install, operate and maintain

UFM 3030 is a light weight compact meters that are easy to install. Additional arrangements like filters, supports, grounding or isolation against vibrations are not necessary. Since the meter is maintenance free, even installation in difficult to access locations is possible.

The unobstructed ultrasonic flow tube, with smooth surface finish inhibits material build-up. This combined with no internal moving parts to wear, provides for many years of maintenance free service. Another inherent advantage of ultrasonic flow meters have over mechanical meters is that due to the lack of internal parts they cannot cause pressure loss.

A unique feature of the UFM 3030 is that it provides a window to the flow as it not only measures flow but also incorporates internal diagnostics and additional process information. Signal strength measurement provides information on the level of attenuation, which could be an indication for e.g. higher viscosities, entrained air, gas or wax. Digital signal processing is also for internal diagnostics, as it continuously performs reliability checks of the measurements and calibrates the time measurement. Three measuring beam also provides redundancy. In the exceptional case that a measurement line should fail the flow measurement continues and is compensated for.

Cost efficient flow metering

The recent introduction of the first three-beam liquid UFM not only incorporates the experiences for improved accuracy and repeatability but also the requirement of end-users for cost efficient flow metering. UFM 3030 is very attractively priced. However, end users are not only looking for attractive prices for their field devices but also for ways to further decrease their cost of ownership and reducing their maintenance. The total costs of a measuring installation with a KROHNE ultrasonic flow meter are considerably lower than of a comparable installation of a coriolis mass meter or turbine flow. Moreover, one universal meter for all applications keeps engineering and inventory costs to a minimum

With its high level of performance, unique properties, wide application range, and maintenance free operation, the UFM 3030 is expected to gain a leading position in the flow meter market and an indispensable solution for industrial processes.