

Non-Intrusive Ultrasonic Clamp-on Flow Measurement of Liquids and Gases

FLUXUS® F/G80X For Operation in Hazardous Areas

Chemical Industries

Petrochemical Industries

Downstream - Refining

Midstream -
Hydrocarbon Transport

E&P - Offshore / Onshore



FLEXIM Sets Standards
when measuring matters



FLUXUS® F/G80X

Specifically Designed for Demanding Environments

From Oil & Gas Exploration and Production to Petrochemical and Chemical Processing

From wellhead to refinery, the flows of crude oil, natural gas and refined products need to be measured every step of the way. Harsh environments with corrosive atmospheres offshore or hot and dirty applications during crude oil refining require tough solutions.

Also during chemical processing, liquid media such as acids, caustics as well as highly viscous organic substances or highly pressurised gas lines place enormous material and mechanical stress upon wetted flow measurement technologies.

FLEXIM offers the better alternative:

- Being non-intrusive, the measurement system never gets into contact with the media inside the pipe and therefore does not suffer any wear and tear.
- Ultrasonic transducers are simply clamped onto the outside of the pipe - plant shut-downs for installation are a thing of the past.
- The measurement system can never be the cause for a potential pipe leak, cannot be prone to clogging and is virtually maintenance-free.
- It is suitable for all pipe sizes from 10 mm (3/8 inch) diameter upwards, with no limitation on pipe material, wall thickness and media temperature.
- FLEXIM's ultrasonic flowmeters offer exceptional reliability and accuracy even at high and low flows due to their matched, calibrated and temperature compensated transducer pairs as well as sophisticated internal signal processing.
- With measurement from outside of the pipe wall, the system offers a long lifetime as well as high energy efficiency as pressure losses inside the pipe can be avoided.

FLEXIM's permanently installed and portable flowmeters for explosive and hazardous areas have already been proven worldwide in many demanding applications with major operators.

Chemical Industry

- Hazardous Organic and Inorganic Media
- Acids and Caustics
- Process Gases
- Polymerisation Processes
- Infrastructural Processes

Hydrocarbon Products Handling

- Hydrocarbon Products Flow Measurement
- Pipeline Integrity Monitoring
- Allocation Terminals
- LNG Terminals
- Underground Gas Storage
- Gas Distribution and Compressor Stations

Crude Oil Refining and Gas Processing

- Distillation Columns
- Cracker and Coker Units
- Petrochemical Processes
- Gas Processing

Oil & Gas Exploration On- & Offshore

- FWKO and Separator Outlets
- Coalescers
- Scrubbers and Reboilers
- Produced Water Management
- Chemical Injection



Advantages

- Bi-directional flow measurement of liquids and gases in ATEX / IECEx Zone 1 and FM Class I, Div. 1 areas
- Very cost effective:
 - No pipe works
 - No process shut-downs
 - Virtually maintenance-free
- Matched, paired and wet calibrated flow transducers (traceable certification to national standards)
- Excellent zero point stability and drift-free
- Wide turndown ratio
- Independent of pipe size, material, operating pressure, medium and temperature
- High tolerance to entrained solids and gases
- Free of wear, tear and abrasion
- Not prone to clogging or corrosion
- No pressure loss or source of potential leaks and fugitive emissions

Rugged, Reliable, Versatile

With its flameproof housing and stainless steel (SS316, IP68 optional) corrosion resistant transducers residing inside the VARIOFIX mounting fixture, ensuring a permanent contact pressure and high mechanical stability, the FLUXUS® F/G80X series is perfectly suited for every demanding industrial application.

The connection and electronic compartment of the FLUXUS® F/G80X series are hermetically sealed, so that the measurement system provides maximum operational reliability and safety, being ATEX / IECEx Zone 1 and FM Class I, Div. 1 approved.

Not only is the FLUXUS® F/G80X rugged and reliable, it is precise. Thanks to carefully matched and temperature compensated transducers (fully ANSI / ASME MFC 5M compliant) the FLUXUS® F/G80X offers an unmatched zero point stability and precise bi-directional flow measurement over an virtually unlimited turndown range.

The F808 single channel liquid flow meter is also available with an extra low flow option, allowing reliable and repeatable measurements, typically between 3 and 20 l/h on line sizes from ¼ to 1½ inches.



FLUXUS® F/G80X

ATEX / IECEx Zone 1 and
FM Class I, Div. 1 approved
liquid and gas flow meter



Technical Facts

FLUXUS® F808	Single channel, non-intrusive ultrasonic flowmeter for liquids in hazardous areas
FLUXUS® F809	Dual channel, non-intrusive ultrasonic flowmeter for liquids in hazardous areas
FLUXUS® G809	Dual channel, non-intrusive ultrasonic flowmeter for gases in hazardous areas
Operating temperature - transmitter:	-30 °C to +60 °C
Physical quantities:	volumetric flow rate, mass flow rate, flow velocity
Degree of protection Transmitter (acc. to IEC / EN 60529):	IP66 (corrosion resistant coating - applicable for usage offshore)
Flow velocity range	
Liquids:	0.01 to 25 m/s
Gases:	0.01 to 35 m/s
Pipe temperatures	
Liquids:	-40 °C to +200 °C [-170 °C to +600 °C by employing the patented WaveInjector® mounting fixture]
Gases:	-40 °C to +100 °C
Pipe diameter range	
Liquids:	10 mm up to 6.5 m
Gases:	40 mm to 2100 mm (up to 35 mm wall thickness)
Repeatability:	0.15% of reading ± 0.01 m/s
Accuracy*	
Liquids:	± 0.5% of reading ± 0.01 m/s, field calibration** ± 1.2% of reading ± 0.01 m/s, advanced calibration
Gases:	± 0.5% of reading ± 0.01 m/s, field calibration** ± 1% to 3% of reading ± 0.01 m/s
Data logger capacity:	>100 000 measured values
Loggable values:	all physical quantities, totalized values and diagnostic values
Outputs:	2 for F808, 4 for F/G809 (various combinations of current, binary, Modbus and HART outputs are available)
Communication interface:	Modbus RTU, HART
Power supply:	100 to 240 V AC / 50 to 60 Hz or 20 to 32 V DC

* under reference conditions and with $v > 0.15$ m/s

** if reference uncertainty better than $< 0.2\%$

Further information can be found in the according F/G80X Technical Specifications at www.flexim.com

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