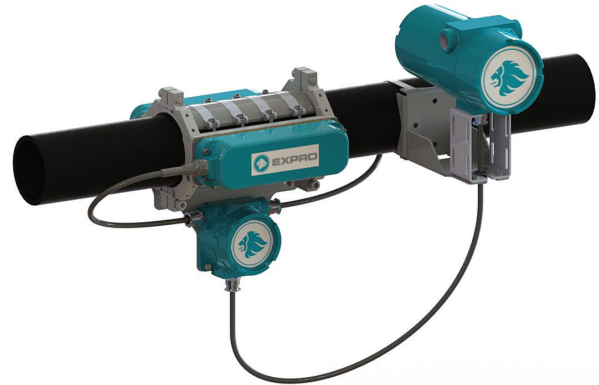# Well Flow Management

Flow Surveillance

Expro ActiveSONAR™ QEX1000 Flow Meter

Expro ActiveSONAR™ flow meter is a member of the sonar class of clamp-on flow meters, for single and multiphase volumetric flow measurement.

Sonar flow meters combine sophisticated submarine sonar array processing techniques with state-of-the-art digital signal processors and transducers.

The ActiveSONAR flow meter employs active pulsed-array sensors clamped to the outside of the pipe to track the velocity of the turbulent eddies in the fluid flow. The velocity is then used to determine volumetric flow rate for the process conditions.

Applications

- Wellhead gas/condensate production surveillance: dry or type I/II wet gas flow measurement
- Gas injection/gas lift
- Water injection
- Downstream gas and liquid flow rate measurement
- Drilling fluids measurement

Features and Benefits

- Well suited to gas and liquid flows
- Applicable to a wide range of flow rates and pressures
- Unaffected by pipe wall thickness or material
- Completely non-intrusive, clamp-on design
- No pressure drop or leak risk
- Unaffected by corrosive or erosive fluids
- Designed for permanent installation in harsh environments
- Large turndown

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Technical specifications

Parameter	Specifications	Comments
Pipe diameter range	2" to 32" NPS	Enquire about other sizes
Flow velocity range	0.3 to 50 m/s (1 to 150 ft/s)	
Flow rate accuracy	+/-2% of full range reading	Whereas accuracy can be improved over reduced measurement range
Repeatability	+/-0.3%	
Sensor head	Clamp-mounted onto the existing pipe section	Sensor head requires 0.3m (1ft) of straight pipe free of fittings
Cable entries	4 x ½" NPT	
Operating temperature range		
Ambient temperature	-45°C to +60°C (-49°F to 140°F)	
Process temperature	-45°C to +125°C (-49°F to 257°F) 1.	
Digital outputs	Serial communications ports	RS-485, half-duplex, quantity 2
Serial communication protocol	Modbus (slave) RTU/ASCII	
Analog output	4-20mA	Requires external accessory
Ingress protection (IP) rating		
Transmitter	IP-66	Canadian, US models are Type 4X
Sensor head	IP-67	
Power requirements	18 to 35 Vdc, 12 watts	
Mounting	Pole or pipe mount	
Methods of protection	Flameproof (d) and encapsulation (mb)	
Gas groups	IIB and IIA	
	Canadian Groups C,D	
	US Groups C, D	
Hazardous area classification		
Model QEX1000F-A-AB	ATEX: Zone 1 IECEx: EPL Gb	Also suitable for ATEX Zone 2 Also suitable for IECEx EPL Gc
Model QEX1000F-A-C	Canada: Class I, Division 2	Canadian: Class I, Zone 2
Model QEX1000F-A-D Model QEX1000F-B-D	US: Class I, Division 2	Also US Class I, Zone 2

Note: Other sizes and configurations are available to meet most applications, for more information contact your local Expro representative or email **flow.surveillance@expro.com**

1. QEX1000F-B-D temperature rating: -45°C to +100°C (-49°F to +212°F)