GE
Measurement & Control

PanaFlow LZ Meter System

Panametrics Ultrasonic Flow Meter

Applications

The PanaFlow LZ is a complete ultrasonic flow meter system for liquid applications. It can be used in applications such as:

- Hydrocarbon liquids
- Fuel oils
- Water
- Solvents
- Weak acid
- Most liquids

Features & Benefits

- No drifting flow measurement
- No periodic calibration
- No maintenance
- No pressure drop
- No restriction in the pipe
- No moving parts and no filters or strainers
- Bi-directional flow measurement
- All welded design
- Measurement independent of temperature, pressure, and conductivity

Reliable flow measurement that is easy on your budget

The PanaFlow LZ is a one or two path wetted, ultrasonic flowmeter that brings all of the advantages of ultrasonic technology at a very affordable value. Unlike other flow measurement technologies, the PanaFlow LZ does not require maintenance since it does not have any obstruction in the flow path that could clog the line nor does it have any moving parts that could be damaged by the flowing fluid. Also, due to the inherent nature of our ultrasonic flow measurement, the PanaFlow LZ's measurement is not affected by changing process conditions (temperature, pressure, and conductivity) and does not drift over time that would require periodic calibration. Therefore, the PanaFlow LZ is a very attractive flowmeter, which provides a lower overall total cost along with superb reliability and performance from a Panametrics ultrasonic flow meter.

Local or Remote Electronics

GE offers several electronics packages that can be mated with the PanaFlow meter system. For local electronics that are factory-installed on the meter body, select the DigitalFlow XMT868i for liquid applications. It is not recommended to mount electronics on applications above 149°F (65°C). Other electronics platforms are also available for remote locations. (Please refer to flowmeter electronics data sheets for instrument specifications.)

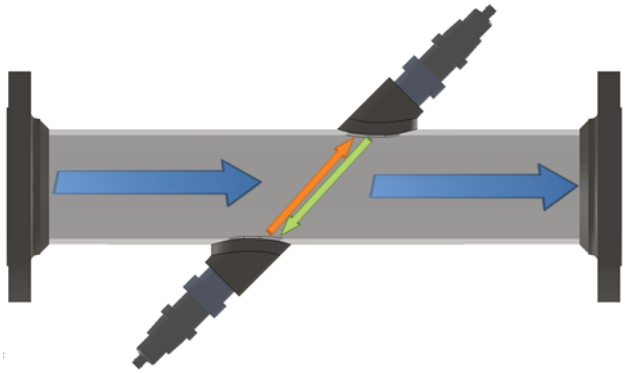
All electronics packages ordered with PanaFlow LZ meter systems are programmed with setup information based on your application, so the system is ready to use as soon as the meter body is installed. When remote electronics are used, transducer cabling must be run between the PanaFlow meter system and the flowmeter electronics. When local electronics are integrated with the system the transducer wiring is already complete, further simplifying the field installation.

Transit-Time Flow Measurement

In this method, two transducers serve as both ultrasonic signal generators and receivers. They are in acoustic communication with each other, meaning the second transducer can receive ultrasonic signals transmitted by the first transducer and vice versa.

In operation, each transducer functions as a transmitter, generating a certain number of acoustic pulses, and then as a receiver for an identical number of pulses. The time interval between transmission and reception of the ultrasonic signals is measured in both directions. When the liquid in the pipe is not flowing, the transit-time downstream equals the transit-time upstream. When the liquid is flowing, the transit-time downstream is less than the transit-time upstream.

The difference between the downstream and upstream transit times is proportional to the velocity of the flowing liquid, and its sign indicates the direction of flow.



Fast and Easy Installation

The integrated PanaFlow meter system is fast and easy to install because components are already installed in the meter body. A PanaFlow meter body is composed of a length of carbon steel or stainless steel pipe with flanged ends and transducer ports rated to the application's pressure requirements, and either one or two pairs of pre-installed ultrasonic transducers. The system is factory assembled and tested to ensure that it meets strict quality control standards.

Specifications

Operation and Performance

Fluid Types
Liquids: acoustically conductive fluids, including most clean liquids, and many liquids with small amounts of entrained solids or gas bubbles

Flow Measurement
Patented Correlation Transit-Time™ model

Paths
1 or 2 Paths

Pipe Sizes
3 in to 24 in (80 mm to 600 mm)

Pipe Material
Carbon Steel
Stainless Steel (316/316L)

Accuracy
±0.5% of reading (for velocity above 2 ft/s (0.6 m/s)... up to 40 ft/s)

Final installation assumes a fully developed flow profile (typically 10 diameters upstream and5 diameters downstream of straight pipe run)and single phase fluids. Applications with piping arrangements that induce swirl (e.g., two out-of-plane elbows) may require additional straight run or flow conditioning.

Repeatability
±0.3% of reading typical

Range (Bidirectional)
0.1 to 40 ft/s (0.03 to 12.19 m/s)

Measurement Parameters
Dependent upon meter electronics used. Please refer to individual flow meter electronics product data sheet.

Meter Body and Transducer

Temperature
WT Transducers: -40 to 175°C (-40 to 347°F)
BWT Transducers: -40 to 100°C (-40 to 212°F)
-40 to 250°C (-40 to 482°F)
Temperature rating of -20°C if used with carbon steel meter body.

Pressure Rating
Up to maximum allowable flange operating pressure at temperature

Transducer Material
316L SS (Buffers)

Meter Body Materials
316SS/316LSS
Carbon Steel

Certification
System components meet the following certifications:

Explosionproof Class I, Division 1, Groups B,C&D
ATEX Flameproof II 2 G Ex d IIC T6
IECEX Flameproof II 2 G Ex d IIC T6 (BWT Only)

Transducer Cables

Integral Cables
Mineral insulated cables
Armored cables

Remote Cables
Refer to individual electronics (sold separately)

Dimensions
Refer to drawings 712-2122 to 712-2125

Drawing	Drawing Description
712-2122	General arrangement drawing, PanaFlow LZ, 2" & 3", 1 path, 2 traverse, tilted diameter
712-2123	General arrangement drawing, PanaFlow LZ, 4" to 24", 1 path, 1 traverse, tilted diameter
712-2124	General arrangement drawing, PanaFlow LZ, 3" & 4", 2 path, 1 traverse, tilted diameter
712-2125	General arrangement drawing, PanaFlow LZ, 6" to 24", 2 path, 1 traverse, mid-radius

PanaFlow LZ Part Number

LZ —	B	— C	— D	E	F	G	H	I	—	J	— K	L	— Z	
														Model
LZ														PanaFlow LZ liquid ultrasonic meter system
														Paths
	1													Single path meter body
	2													Dual path meter body
														Meter Body Size
		002												2in (50mm)
		003												3in (80mm)
		004												4in (100mm)
		006												6in (150mm)
		008												8in (200mm)
		010												10in (250mm)
		012												12in (300mm)
		014												14in (350mm)
		016												16in (400mm)
		018												18in (450mm)
		020												20in (500mm)
		24												24in (600mm)
														Pipe Schedule
			A											STD schedule (CS system)
			B											XS schedule (CS system)
			C											40S schedule (SS system)
			D											80 schedule (SS system)
														Process Flange Rating
				A										ANSI 150# RF (SO) process flange
				B										ANSI 300# RF (SO) process flange
				C										ANSI 600# RF (SO) process flange
														Meter Body Material
					1									Carbon steel (ASTM A106 Gr. B/A105)
					2									Stainless steel (A312 Gr.316/316L or A358 316/316L Cl.2 EFW)
														System Design
						A								ASME B31.3 & NACE MR0175
						C								ASME B31.3, CRN & NACE MR0175
						P								PED & NACE MR0175
														Meter Body Paint
							A							No paint (SS systems only)
							B							System B high temperature primer (400°C/750°F)
							C							System C epoxy paint (230°C/450°F)
														Meter Body Testing
								1						Standard NDE (Hydrostatic Testing, Radiography (if applicable), and LPI)
														Electronics Mounting
										LM				Local mount (mineral filled cables) - 65°C (149°F) maximum temperature
										LA				Local mount (armored cables) - 65°C (149°F) maximum temperature
										RM				Remote mount (cable must be ordered separately)
														Transducer/Buffer System
											1			Pair of WT wetted transducers (SS) with BNC connector and 316SS Panadapta buffers (-40°C to 175°C or -40 to 347°F operating temperature
											2			Pair of WT wetted transducers (SS) with submersible connector and 316SS Panadapta buffers (-40°C to 175°C or -40 to 347°F operating temperature), no junction box option and remote cable required
											3			Pair of BWT1 wetted transducers (SS) with BNC connector and 316SS FWPA buffers (-40°C to 100°C or -40 to 212°F operating temperature)
											4			Pair of BWT1 wetted transducers (SS) with BNC connector and 316SS FWPA buffers (-40°C to 250°C or -40 to 482°F operating temperature)
														Transducer Junction Box/Hazardous Area Rating
												00		No junction box on transducers - not hazardous area rated (Option K = 2 only)
												AX		USA/CAN for Div 1, Class 1, Groups B-D areas
												EX		ATEX II 2G Ex d IIC T6
												UX		IECEx Ex d IIC T6
														Specials
													0	None
													S	Special

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