GE
Measurement & Control

PanaFlow Z3

Panametrics Ultrasonic Flow Meter for Liquids

Applications

The PanaFlow Z3 represents the latest generation of Panametrics ultrasonic flow meters. It is a three-path meter designed specifically for dependable, accurate and repeatable measurement of process liquids. With a sleek industrial design and ultra-reliable electronics, it provides operators a cost effective top-of-the-line choice.

The capabilities of the PanaFlow Z3 make it the right meter for a number of industries and applications, including:

- Upstream, midstream and downstream oil and gas for allocation measurement
- Chemical & petrochemical for process control
- Water and wastewater
- Power
- HVAC
- Batching and blending
- Plant utilities
- Irrigation
- Cooling water

Features and 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
- Measurement independent of temperature, pressure, and conductivity

GE imagination at work

Reliable flow measurement that is easy on your budget

The PanaFlow Z3 is a three-path, wetted ultrasonic flow meter that brings all of the advantages of ultrasonic technology at a very affordable value. Unlike other flow measurement technologies, the PanaFlow Z3 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 Z3's measurement is not affected by changing process conditions (temperature, pressure, and conductivity) and does not drift over time that would require periodic calibration. With no maintenance and calibration required, PanaFlow Z3 couples lower overall cost with superb reliability and performance.

Fast and Easy Installation

Wetted systems typically provide higher accuracy than clamp-on systems, but installation can be complicated and difficult. If not installed with precision and close attention to detail, their reliability and accuracy may not meet the product specifications. With the new PanaFlow Z3 system, the assembly work is done at the factory. The necessary components are already installed, so all the user needs to do is to bolt the end flanges into place.

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.

What is the PanaFlow Z3?

The PanaFlow Z3 consists of the new XMT910 electronics, three pairs of LX transducers, and sensor body. The Panametrics XMT910 is our latest transmitter and combines state-of-the-art flow measurement capability with rigorous engineering and testing. The LX transducer system is our latest advancement to provide accurate, drift-free, obstruction-less flow measurement.

The LX transducer system consists of our new integrated LX transducers and our uniquely engineered buffers (patent pending). The design of this system allows for the insertion and removal of the LX transducers at any time without having to isolate the flow meter or shut down the process. Together with the XMT910 electronics and LX transducer, the uniquely designed meter body provides a clean and compact flow meter system.

Overall 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

Accuracy
- ±0.5% of reading for velocities above 1.6 ft/s (0.5 m/s)
- ±2.5 mm/s of reading for velocities below 1.6 ft/s (0.5 m/s)

Accuracy statement assumes measurement of a single phase homogenous liquid with a fully developed symmetrical flow profile passing through the meter. Applications with piping arrangements that create an asymmetrical flow profile may require extended piping straight runs and/or flow conditioning for the meter to perform to this specification.

Calibration
All meters are calibrated and include a calibration certificate.

Repeatability
±0.2% of reading

Range (Bidirectional)
-40 to 40 ft/s (-12.19 to 12.19 m/s)

Meter Body/Transducer

Meter Body Materials
CS: ASTM SA216 Gr. WCB
SS: ASTM SA351 Gr. CF8M

Transducer System and Material
LX transducers with inserts (patent pending)
316L SS
Seals: FKM or EPDM

Transducer Temperature Ranges
-4°F to 284°F (-20°C to 140°C)

Pressure Range
Up to maximum allowable flange operating pressure at temperature

Electronics

Enclosures
Epoxy coated, copper free aluminum

Classifications (Pending)
US/CAN – Explosion-proof Class 1, Division 1, Groups B, C, and D
ATEX - Flameproof II 2 G Ex d IIC T6 Gb
IECEx - Flameproof Ex d IIC T6 Gb
Exempted from ROHS compliance (Category 9)
WEEE Compliance

Electronics Mounting
Local mounting (on meter body)
Remote mounting, up to 100 ft (30 m)

Channels
Three channels

Paths
Three paths

Display Languages
English

Keypad
Built-in magnetic six-button keypad for full functionality operation

Inputs/Outputs
One analog (4-20mA+HART) output, one additional analog (4-20mA) output, two digital* outputs, service/ Modbus(RS485) output

*Digital outputs are programmable as either pulse, frequency, alarm, or control outputs
Analog outputs are NAMUR NE43 compliant

Power Supplies
Standard: 100-240 VAC (50/60 Hz)
Optional: 12 to 28 VDC

Cable Entries
¾" NPT
M20

Operating Temperature
-40°F to 140°F (-40°C to +60°C)

Storage Temperature
-40°F to 158°F (–40°C to 70°C)

Data Logging
XMT910 meter logging (3000 variables)
Vitality software logging

XMT910 transmitter (remote mount)

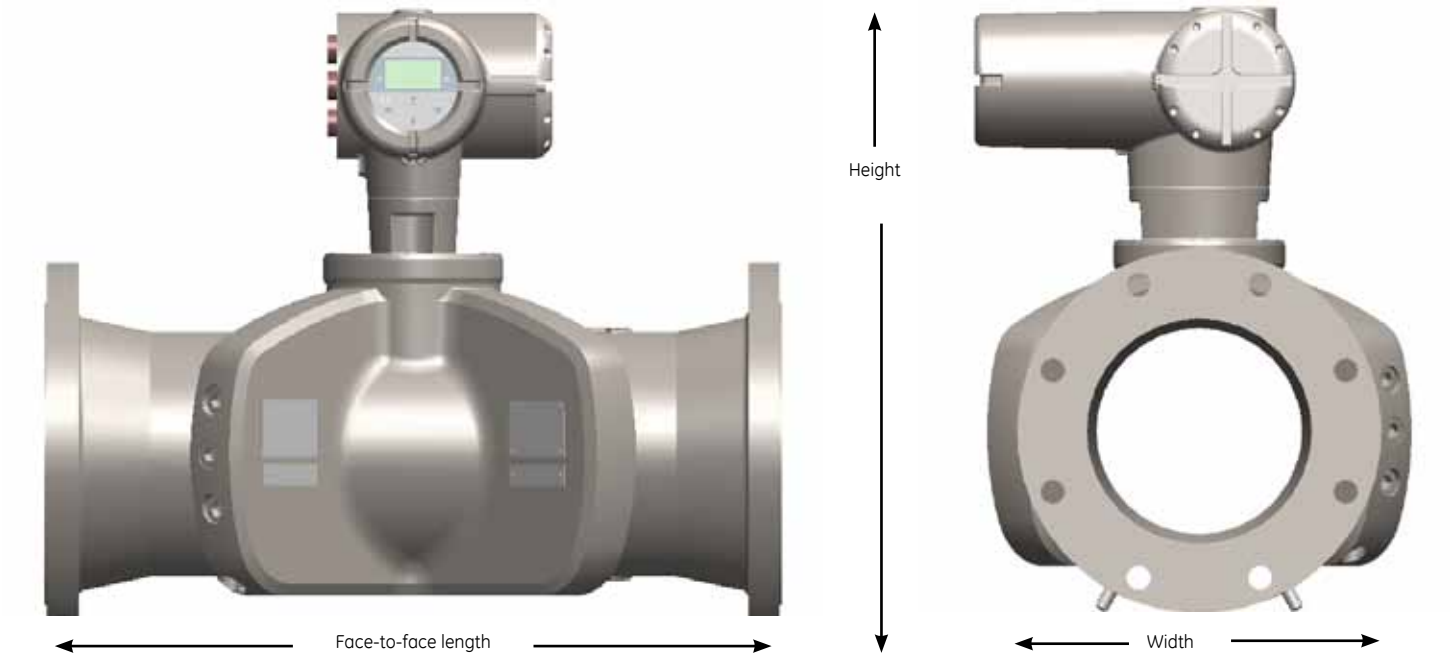
Transducer Cables
Remote cables: Armored cable with ATEX/IECEX-certified cable glands or standard coaxial cable (standard coaxial cable requires conduit or other means to meet local area code)

Ordering Information

A	—	B	C	D	E	F	G	—	H	—	I	J	K	L	M	N	O	P	Q	-	Z	
																						Model
PF9-Z3																						Three path, single traverse design
																						Meter Body Size
		03																				3in (80mm) meter body
		04																				4in (100mm) meter body
		06																				6in (150mm) meter body
		08																				8in (200mm) meter body
																						Meter Flange Rating
			A																			ANSI 150# RF (WN) process flange
			B																			ANSI 300# RF (WN) process flange
			C																			ANSI 600# RF (WN) process flange
																						Meter Body Material
				CS																		Carbon steel meter body
				S6																		316 stainless steel meter body
																						Meter Schedule
					040																	Schedule 40 meter body —carbon steel
					080																	Schedule 80 meter body —carbon steel
					40S																	Schedule 40 meter body —stainless steel
					80S																	Schedule 80 meter body —stainless steel
					S																	Special schedule meter body
																						Design Criteria
						A																ASME B31.3 and NACE MR0175/MR0103
						C																ASME B31.3, CRN registered, and NACE MR0175/MR0103
						P																PED compliant and NACE MR0175/MR0103
																						Paint
							A															No paint (stainless steel version only)
							G															Standard PanaFlow Z3 paint – RAL 000 30 00
																						NDE
									0													No NDE documentation
									1													NDE documentation
																						Transducer Mounting Material
											V											FKM (recommended for most petroleum liquids)
											E											EDPM (recommended for water applications)
																						Electronics Mounting
												L										Local mounting of XMT910 electronics (Tmax = 85°C, 185°F)
												R25										Remote mounting: 25 feet (7.5 meters) of cable
												R50										Remote mounting: 50 feet (15 meters) of cable
												R100										Remote mounting: 100 feet (30 meters) of cable
																						XMT910 Enclosure
													1									Epoxy coated XMT910 aluminum enclosure (IP67)
																						Connections
														1								3/4" NPT power and input/output connections
														2								M20 NPT power and input/output connections
																						Power
															1							100-240 VAC input power
															2							12-28 VDC input power
																						Display Option
																1						Local Display
																						Communication
																	D					One analog/HART, one analog, two digital outputs, and Modbus/RS485 communication/service port
																						Transducers/Buffers
																		5				Normal temperature LX transducer system (-20° to +140°C, -4° to +284°F)
																						System Rating
																			A			Explosion-proof , Class I, Div 1, Group B, C, & D (US/CAN) - Pending
																			E			Flameproof, II 2 G Ex d IIC T6 Gb (ATEX) - Pending
																			I			Flameproof, Ex d IIC T6 Gb (IECEx) - Pending
																						Specials
																				O		None
																				S		Special

PanaFlow Z3 Dimensions

Local Mount Design



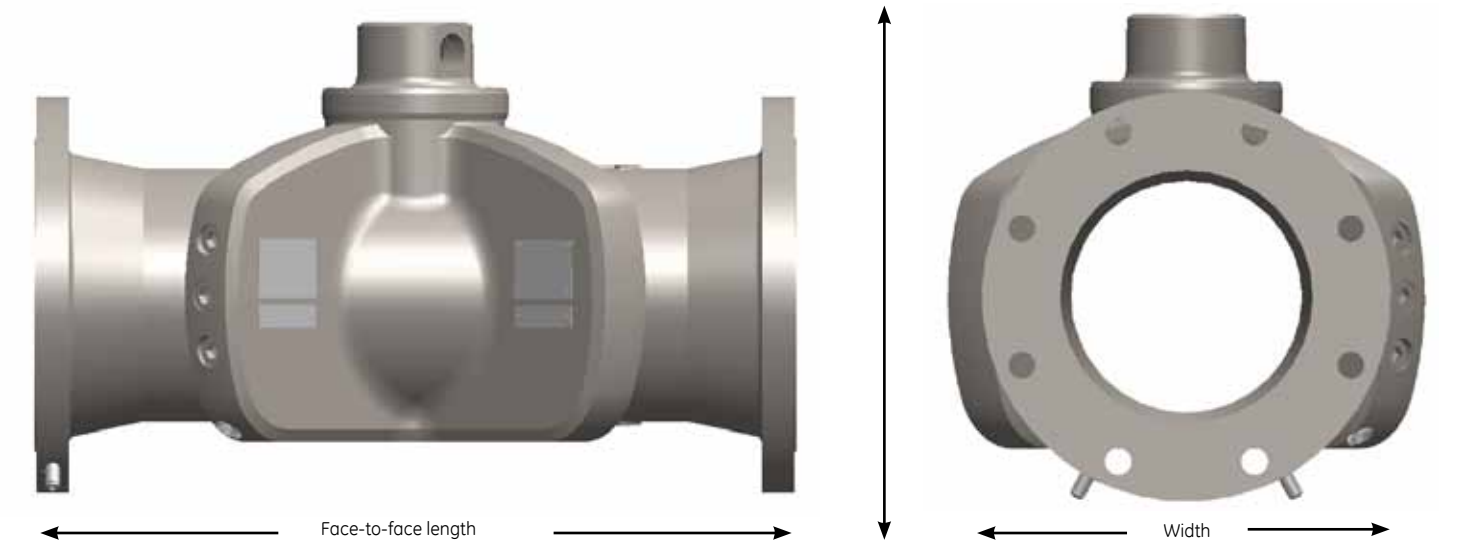
Imperial Units

Pipe Size (in)	Flange Rating	Material	Length (FTF) (in)	Height (in)	Width (in)	Weight (lb)
3	150#	CS	20	17	13	128
3	150#	SS	20	17	13	127
3	300#	CS	20	17	13	138
3	300#	SS	20	17	13	136
3	600#	CS	20	17	13	143
3	600#	SS	20	17	13	141
4	150#	CS	20	19	14	154
4	150#	SS	20	19	14	153
4	300#	CS	20	19	14	179
4	300#	SS	20	19	14	177
4	600#	CS	20	19	14	211
4	600#	SS	20	19	14	209
6	150#	CS	22	22	15	216
6	150#	SS	22	22	15	214
6	300#	CS	24	22	15	255
6	300#	SS	24	22	15	252
6	600#	CS	26	22	15	319
6	600#	SS	26	22	15	315
8	150#	CS	26	24	16	309
8	150#	SS	26	24	16	468
8	300#	CS	28	24	16	375
8	300#	SS	28	24	16	371
8	600#	CS	30	24	16	474
8	600#	SS	30	24	16	455

Metric Units

Pipe Size (mm)	Flange Rating	Material	Length (FTF) (mm)	Height (mm)	Width (mm)	Weight (kg)
80	150#	CS	508	432	331	58
80	150#	SS	508	432	331	57
80	300#	CS	508	432	331	62
80	300#	SS	508	432	331	62
80	600#	CS	508	432	331	65
80	600#	SS	508	432	331	64
100	150#	CS	508	483	356	70
100	150#	SS	508	483	356	69
100	300#	CS	508	483	356	81
100	300#	SS	508	483	356	80
100	600#	CS	508	483	356	96
100	600#	SS	508	483	356	95
150	150#	CS	559	559	381	98
150	150#	SS	559	559	381	97
150	300#	CS	610	559	381	116
150	300#	SS	610	559	381	114
150	600#	CS	661	559	381	145
150	600#	SS	661	559	381	143
200	150#	CS	661	610	407	140
200	150#	SS	661	610	407	212
200	300#	CS	712	610	407	170
200	300#	SS	712	610	407	168
200	600#	CS	762	610	407	215
200	600#	SS	762	610	407	207

Remote Mount Design



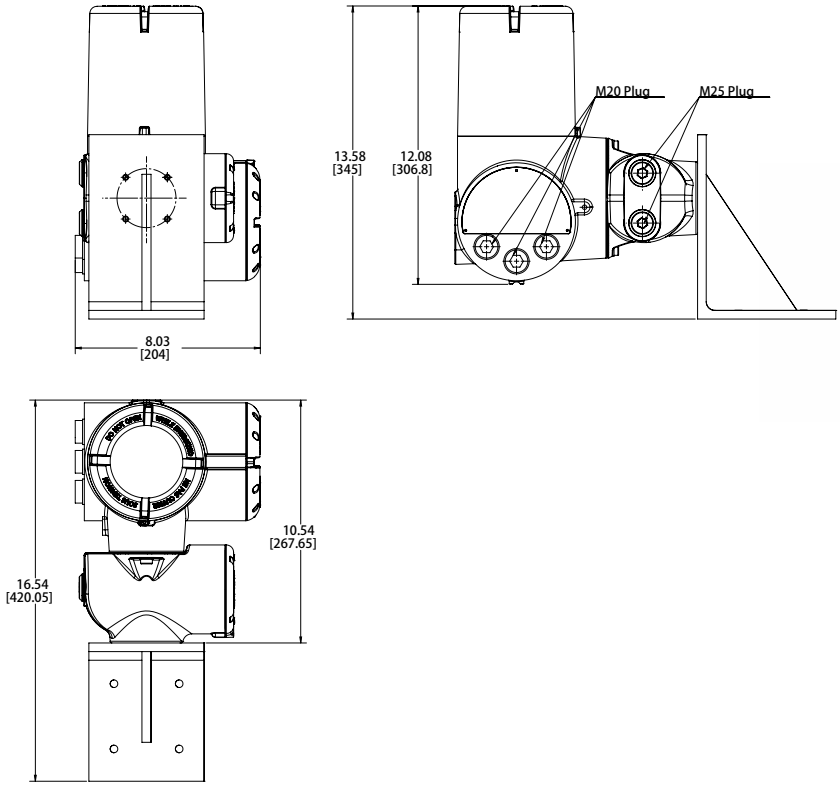
Imperial Units

Pipe Size (in)	Flange Rating	Material	Length (FTF) (in)	Height (in)	Width (in)	Weight (lb)
3	150#	CS	20	11	10	115
3	150#	SS	20	11	10	114
3	300#	CS	20	11	10	125
3	300#	SS	20	11	10	123
3	600#	CS	20	11	10	130
3	600#	SS	20	11	10	128
4	150#	CS	20	13	12	141
4	150#	SS	20	13	12	140
4	300#	CS	20	13	12	166
4	300#	SS	20	13	12	164
4	600#	CS	20	13	12	198
4	600#	SS	20	13	12	196
6	150#	CS	22	15	14	203
6	150#	SS	22	15	14	201
6	300#	CS	24	15	14	242
6	300#	SS	24	15	14	239
6	600#	CS	26	15	14	306
6	600#	SS	26	15	14	302
8	150#	CS	26	18	16	296
8	150#	SS	26	18	16	292
8	300#	CS	28	18	16	362
8	300#	SS	28	18	16	358
8	600#	CS	30	18	16	461
8	600#	SS	30	18	16	455

Metric Units

Pipe Size (mm)	Flange Rating	Material	Length (FTF)(mm)	Height ((mm)	Width (mm)	Weight (kg)
80	150#	CS	508	280	254	52
80	150#	SS	508	280	254	52
80	300#	CS	508	280	254	57
80	300#	SS	508	280	254	56
80	600#	CS	508	280	254	59
80	600#	SS	508	280	254	58
100	150#	CS	508	331	305	64
100	150#	SS	508	331	305	63
100	300#	CS	508	331	305	75
100	300#	SS	508	331	305	75
100	600#	CS	508	331	305	90
100	600#	SS	508	331	305	89
150	150#	CS	559	381	356	92
150	150#	SS	559	381	356	91
150	300#	CS	610	381	356	110
150	300#	SS	610	381	356	108
150	600#	CS	661	381	356	139
150	600#	SS	661	381	356	137
200	150#	CS	661	458	407	134
200	150#	SS	661	458	407	133
200	300#	CS	712	458	407	164
200	300#	SS	712	458	407	162
200	600#	CS	762	458	407	209
200	600#	SS	762	458	407	207

Remote Mount Design



XMT910 Electronics Only — Imperial Units

Length (FTF) (in)	Height (in)	Width (in)	Weight (lb)
12	11	8	13

XMT910 Electronics Only — Metric Units

Length (FTF) (mm)	Height (mm)	Width (mm)	Weight (kg)
307	268	204	6

XMT910 Electronics with Stand — Imperial Units

Length (FTF) (in)	Height (in)	Width (in)	Weight (lb)
14	17	8	14

XMT910 Electronics with Stand — Metric Units

Length (FTF) (mm)	Height (mm)	Width (mm)	Weight (kg)
345	420	204	6

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920-610B