F1001
Coriolis Mass Flow Meter

Description

Coriolis mass Flow Meter is a major advance in massflow measurement. These meters have got a precedent for accuracy and repeatability under a wide variety of flow conditions. The inherent precision has established it as a standard for numerous industrial applications. The ability of these meters to measure mass flow and density directly has led to their use in applications ranging from metering food products to corrosive chemicals. Coriolis meters have proven extremely reliable when metering noncorrosive fluids. The same reliability can beachieved in corrosive services if consideration is given to the compatibility of the process fluid with the sensor materials of construction. Coriolis technology appealed to us, after all, coriolis is the most accurate technique available for measuring process mass and volume flow.

Micro-bend Version

Features

- DSP transmitter with superior accuracy ± 0.1%
- 20:1 turndown ratio
- 5 to 8 calibration points
- Mass flow, density, temperature and volume flow can be measured at the same time
- Improved startup and availability with simple commissioning and reduced risk
- No moving parts result in no maintenance
- Install anywhere with no flow conditioning or straight pipe required

Specification

- Flow Range: 16 kg/h to 2500 t/h
- Connection: Flange/Thread
- Operating Pressure:Customized
- Process Temperature: Up to 662° F (up to +350 ℃)
- Body Material: 304 Stainless Steel
- Measuring Tube Material: 316L Stainless Steel
- Ambient Temperature: -40 to 131° F (-40 to +55 ℃)
- Working Humidity: (5% to 95%) RH@77° F (+25℃)
- Accuracy: Up to ±0.1%
- Repeatability: ±0.05%
- Protection: IP 65 (IP 67 optional)
- Approvals: CE, Exd (ib)II CT4
- RS 485 Output
- Pulse Output: 0 to 10 kHz, ±0.001%F.S/℃
- Current Output: 4 to 20mA, ±0.005%F.S/℃,
- Power Supply: 85 to 265 VAC, 18 to 36 VDC
- Density Measuring:
  Range: 0.2 to 2.0 kg/l,
  Repeatability: 0.001 kg/l

Application

F1001 Coriolis Mass Flow Meter measures the fluid mass flow directly. The Coriolis measuring principle operates independently of physical fluid properties, such as viscosity and density. It is a proven technology that has been employed in a wide variety of industries such as petroleum, petrochemical industry, pharmacy, paper making, food and energy, etc. The typical applications are as follows:

- Batch Control
- Blending
- Process Control
- Filling & Dosing
- Loading and Unloading
- Custody transfer
- Process gas measurement

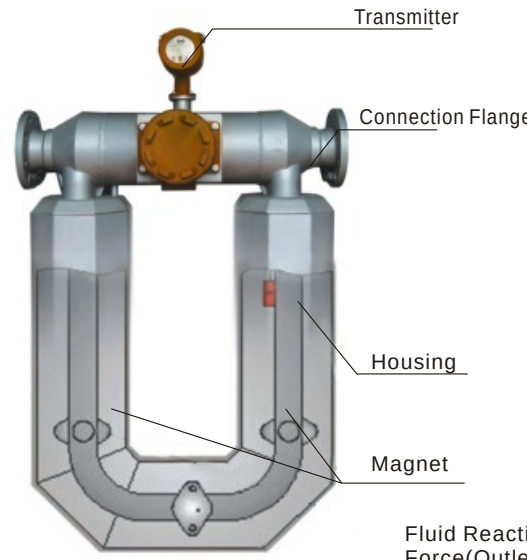
GPE
www.gpeus.com sales@gpeus.com

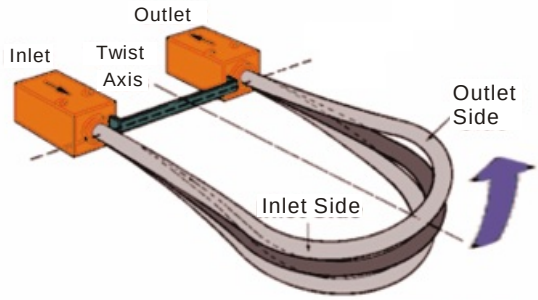
F1001
Coriolis Mass Flow Meter

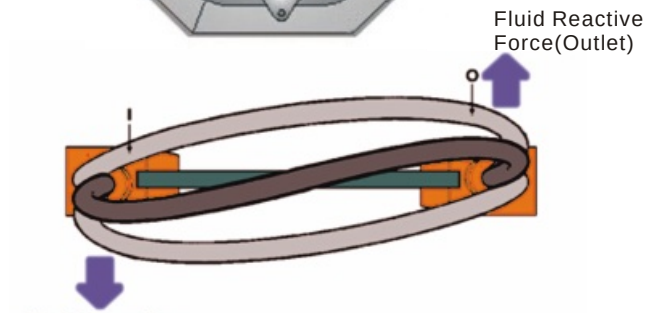
VF1001-002.00-13/04

Principle

F1001 Coriolis Mass Flow Meter uses two parallel arranged pipes which are rotated at their resonant frequency by coils. Any mass flow passing through the tubes will generate coriolis forces which appear whenever a mass moves radially in a rotating system. The forces have opposed effects on the inlet and outlet sides, they slightly deform the pipes. The excursion of the pipes is detected by sensors on the inlet and outlet side.The phase shift between the rotational frequencies of both pipes are proportional to the mass flow rate. The resonant frequency of both pipes changes in accordance with the density of the medium. This effect determines the density. Using one sensor density and temperature can also be measured.The extent of deformation of the pipes depends on temperature.Therefore the temperature is measured for compensation purposes.







Fluid Reactive Force(Intlet)
Oscillating Flow Tube, Response To Flow

Liquid Flow Range (kg/h)

General Version

Size	Allowable Flow Range	Normal Flow Range for Accuracy ±0.1% & ±0.15%	Normal Flow Range for Accuracy ±0.2% & ±0.5%	Stability of Zero Point (kg/h)
½"	30 to 3000	150 to 3000	100 to 3000	0.38
1"	80 to 8000	400 to 8000	300 to 8000	1
1½"	320 to 32000	2000 to 32000	1500 to 32000	4
2"	500 to 50000	3500 to 50000	2500 to 50000	6.25
3"	1400 to 140000	6000 to 140000	6000 to 140000	17.5
4"	2000 to 200000	15000 to 200000	10000 to 200000	25
6"	5000 to 500000	35000 to 500000	25000 to 500000	62.5
8"	10000 to 1000000	70000 to 1000000	50000 to 1000000	125

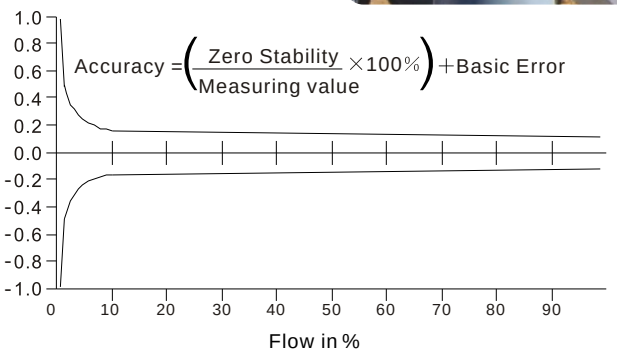
Micro-bend Version

Size	Allowable Flow Range	Normal Flow Range for Accuracy ±0.1% & ±0.15%	Normal Flow Range for Accuracy ±0.2% & ±0.5%	Stability of Zero Point (kg/h)
1½"	240 to 24000	2400 to 24000	1200 to 32000	4
2"	500 to 50000	5000 to 50000	2500 to 50000	6.25
3"	800 to 120000	8000 to 120000	6000 to 140000	17.5
4"	1500 to 200000	15000 to 200000	10000 to 200000	25
6"	5000 to 500000	50000 to 500000	25000 to 500000	62.5
8"	10000 to 1000000	100000 to 1000000	50000 to 1000000	125

GPE
www.gpeus.com sales@gpeus.com

F1001
Coriolis Mass Flow Meter

Accuracy



The diagram shows typical values.
Individual values may be taken from the calibration records supplied with each meter.

Repeatability

Accuracy	±0.10%	±0.20%	±0.50%
Repeatability	±0.05%	±0.1%	±0.25%

Accuracy is calculated based on the water measurement under the condition of +20℃ to 25℃ and 0.1MPa to 0.2MPa.

Density Measuring

Density Range	(0.2 to 2.0) g/cm^3
Basic Error	±0.002g/cm^3 (Affected by the transducer)
Repeatability	0.001g/cm^3

GPE
www.gpeus.com sales@gpeus.com

F1001
Coriolis Mass Flow Meter

Model Selection

F1001-Series

Example F1001-025 LAN2COMEX2P1

F1001	Size	Medium	Sensor Version	Connection	PN	Struct.	Ex	Power	Output	Accuracy	Description
½"	015										Size
1"	025										
1½"	040										
2"	050										
3"	080										
4"	100										
6"	150										
8"	200										
Liquid		L									
Gas		G									
Triangle-shaped Version (Size from 1/2" to 1")			T								Meter Body Shape
U-shaped Version (Size from 1 1/2" to 8")			U								
Micro-bend Version(Size from 1 1/2" to 8")			M								
ANSI				AN							Flange Standard
DIN				DI							
JIS				JS							
Sanitary fitting(for micro-bend version only)				SF							
Others				OF							
230psi(16bar)					1						Max. Working Pressure
360psi(25bar)					2						
580psi(40bar)					3						
915psi(63bar)					4						
Compact Version (-50℃ to +125℃)						COM					Housing
Remote Version (-50℃ to +200℃)						REM					
Non-Explosion							NX				Approval
Explosion proof							EX				
DC18 to 36V								1			Power Supply
AC85 to 265V								2			
4 to 20mA/Pulse									P		Signal Output
RS485+Pulse+4 to 20mA									R		
Hart+Pulse+4 to 20mA									H		
±0.1%										1	Accuracy
±0.2%										2	
±0.5%										5	

GPE
www.gpeus.com sales@gpeus.com