

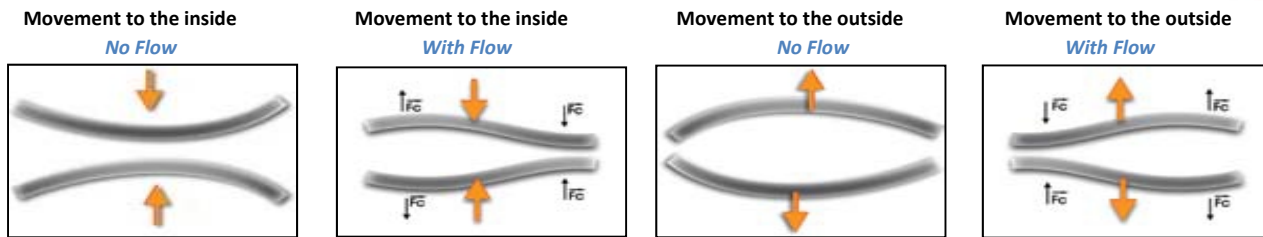


ALCM-UT

Coriolis Mass Flowmeter
ALCM Series

GENERAL

SMC's ALCM-UT uses two tubes formed into a U-shaped geometry in a parallel arrangement which are vibrated 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 opposite effects on the inlet and outlet side, deforming each pipe by a minor amount. The excursion of the pipes is detected by the inlet and outlet-side sensors. The phase shift between the rotational frequencies of both pipes is directly proportional to the mass flow rate and the resonant frequency of both pipes changes in accordance with the density of the fluid media. This effect allows for measurement of the density. Using only one sensor, both density and temperature measurements may be performed as the extent of deformation of the pipes is temperature-dependent. Therefore, the temperature is measured for compensation purposes. Using only one primary sensor, values including mass flow, density, and temperature may be measured. The ALCM's microprocessor-based circuitry allows for conversions such as volumetric flow and % concentration to be calculated.



FEATURES

- Suitable for aggressive and contaminated media
- Measurement of mass flow, density, temperature and volume flow
- Measurement & display of % water cut for oil/water mixtures
- High rotation frequency and well-balanced measuring tubes
- Excellent purging and sterilization qualities due to a construction free of dead spots
- Operation up to +300 °C
- Individual 8-point-calibration including report
- EX protection (optional)

SPECIFICATIONS

- | | |
|---|---|
| <ul style="list-style-type: none"> • Flow Range: 1,500~1,000,000 kg/hr • Line Sizes: 1¼"~8" (40-200 mm) • Process Connections: Flanged (ANSI, DIN, Tri-Clamp®) • Tube geometry: U-Tube • Accuracy: ±0.5% of reading(std), 0.2% or 0.15% (opt) • Repeatability: ±0.075% of reading • Frequency: 10-2000 Hz • Display: Color Graphic OLED <ul style="list-style-type: none"> Eng. Units (mass): kg, lb, ton Eng. Units (Temp): °C, °F Eng. Units (Vol.): m³, Liter, US Gallon, Imperial Gallon, Million Gallon, • Zero Stability: 0.1% full-scale • Zero Drift (%FS / °C): 0.005 | <ul style="list-style-type: none"> • Process Temperature: -58~392 °F (-50~200 °C) • Ambient Temperature: -5~312 °F (-20~55 °C) • Max Working Pressure: 360 psig (2.5MPa) std, 930 psig optional • Measuring Tube Mat'l: SS per DIN1.4571 (AISI 316Ti) standard • Housing Material: SS #304 • Power Supply: 24 V_{DC}, ± 20%; 86~260V_{AC}, 50~60Hz • Power Consumption: Less than 6W • Outputs.: 4-20 mA, 0-10 kHz pulse, RS485 • Density Meas. Range: 0.2~2.0 g/cc • Density Accuracy: ±0.001 g/cc • Water Cut Meas. Range: 0-100% • Water Cut Accuracy: ±0.1% of range • Temperature Accuracy: up to ±1 °C |
|---|---|

SmartMeasurement

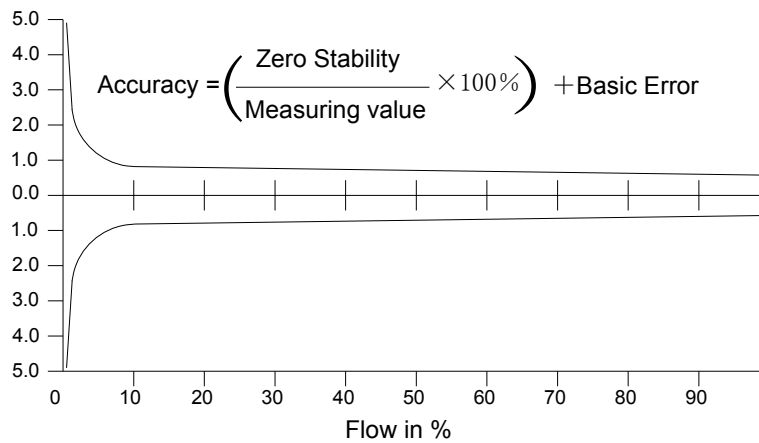
10437 Innovation Drive, Suite 315, Milwaukee, WI 53226
TEL : +1-414-299-3896 FAX : +1-414-433-1606



➤ Flow Ranges

DN (mm)	Flow Range (0.2% & 0.5% accuracy)	Flow Range Accuracy 0.15%	Stability of Zero Point (Kg/Hr)	FS Pressure Drop (Mpa) (water at 20°C)
40	1,500~30,000	2,000~30,000	3	0.140
50	2,500~50,000	3,500~50,000	5	0.073
80	6,000~120,000	9,000~120,000	12	0.057
100	10,000~200,000	15,000~200,000	20	0.047
150	25,000~500,000	35,000~500,000	50	0.046
200	50,000~1,000,000	70,000~1,000,000	100	0.087

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°C~25°C and 0.1MPa~0.2MPa.

Density Measuring

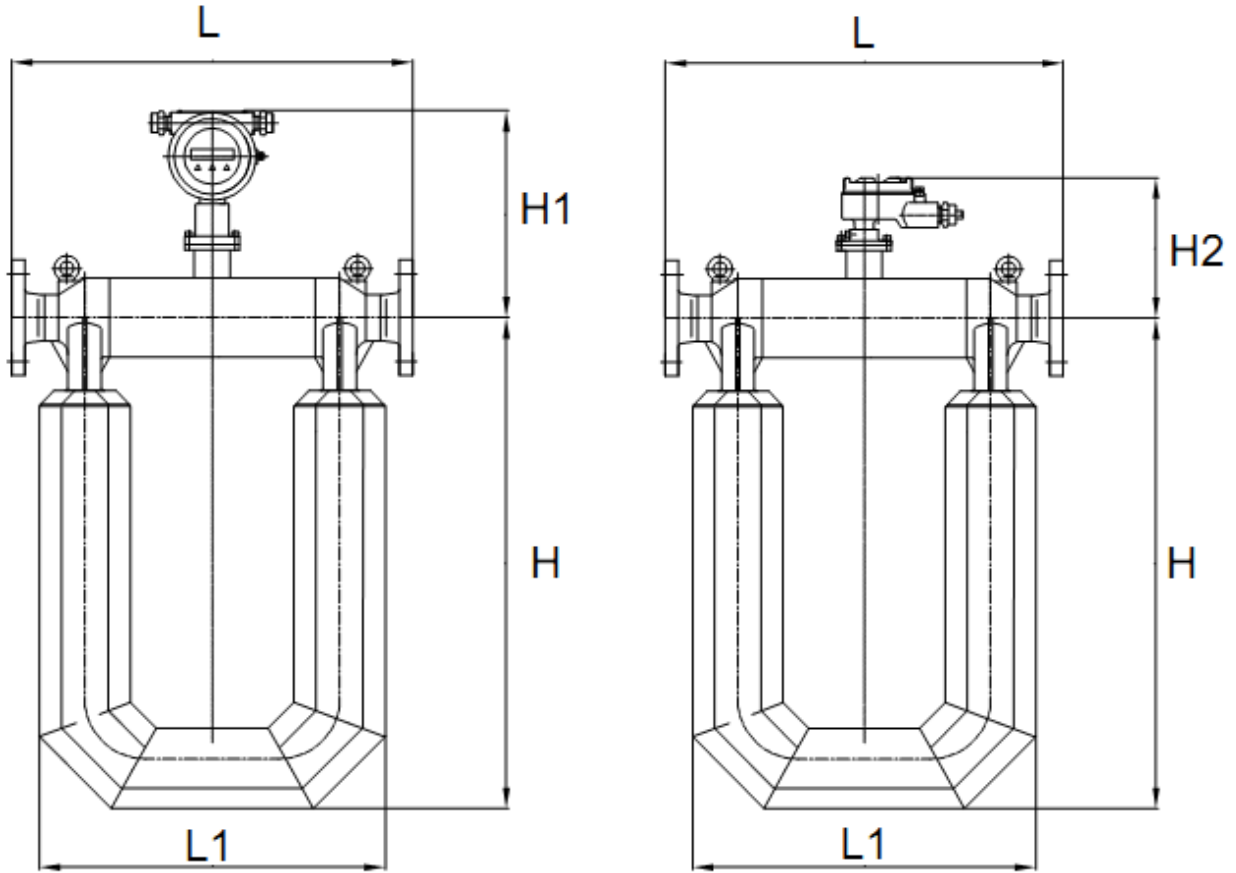
Density Range	(0.2~2.0) g/cm ³
Basic Error	±0.002g/cm ³ (Affected by the transducer)
Repeatability	0.001g/cm ³



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Dimensions



-All dimensions in units of inches (mm)-

Nominal Line Size	L	L1	H	H1	H2
1½" (40 mm)	17.72" (450)	11.00" (280)	26.00" (660)	10.78" (274)	7.17" (182)
2" (50 mm)	22.44" (570)	14.33" (364)	28.35" (720)	11.42" (290)	7.80" (198)
3" (80 mm)	33.45" (850)	20.47" (520)	40.25" (1023)	12.60" (320)	8.94" (227)
4" (100 mm)	37.40" (950)	23.81" (605)	44.68" (1135)	13.62" (346)	10.00" (254)
6" (150 mm)	43.30" (1100)	27.00" (686)	57.68" (1465)	14.61" (371)	13.31" (335)
8" (200 mm)	54.60" (1365)	46.00" (1150)	68.00" (1700)	16.80" (420)	14.80" (370)



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Please contact your SmartMeasurement application engineer

You also need to provide the following information:

Type of fluid
Full-scale flow rate
Line Size
Process Pressure & Temperature
Pressure Drop
Type of Electronics
Power Requirements

Please provide the name of your fluid, including operating density and viscosity

Please provide the max and min flow rate, normal flow rate also

Please provide the line size and connection

We will calibrate the meter as close to your operating conditions as possible

Very important

Please specify output and installation type (wall mount, panel mount, etc.)

Please specify AC or DC power supply

➤ Model Selection Guide

ALCM-UT											
Example 1: ALCM-UT-50F-5-1-11-CYH-NX-DC-NN											
ALCM-UT-	**	**	**	**	**	**	**	**	**	**	Description
1½" (40 mm) → 1,500~30,000 kg/hr	40										Nominal Line Size
2" (50 mm) → 2,500~50,000 kg/hr	50										
3" (80 mm) → 6,000~120,000 kg/hr	80										
4" (100 mm) → 10,000~200,000 kg/hr	100										
6" (150 mm) → 25,000~500,000 kg/hr	150										
8" (200 mm) → 50,000~1,000,000 kg/hr	200										
150# ANSI Flange	F										Process Connections
300# ANSI Flange	F3										
Sanitary Flange	S										
Other	O										
0.15%	1									Accuracy	
0.2%	2										
0.5%	5										
257 °F (125 °C) max. - Standard	1									Temperature Rating	
392 °F (200 °C) max.	2										
662 °F (350 °C) max. (Special option; consult factory)	3										
232 psig (1.6 MPa) - Standard	1									Pressure Rating	
362 psig (2.5 MPa)	2										
580 psig (4.0 MPa)	3										
928 psig (6.4 MPa)	4										
TSY Compact Version - surface touch control, OLED display, 4-20mA, RS485						CYS					Transmitter
TSY Compact Version - surface touch control, OLED display, 4-20mA, RS485, HART						CYH					
TSY Remote Version - surface touch control, OLED display, 4-20mA, RS485						RYS					
TSY Remote Version - surface touch control, OLED display, 4-20mA, RS485, HART						RYH					
Non -EX						NX					Approval
Exdib II CT3~T6 for transducer, Exd[ib] II CT6 transmitter (for remote)						XI					
Exdib II CT4~T6 (for compact)						XD					
85-260 V _{AC} , 50/60Hz						AC					Power
24 V _{DC}						DC					
Standard 316L measuring tube						NN					Options
Signal cable for remote-type displays – specify length in meters after the "CABL"						CABL					
Steam jacket						HJ					