ACU20FE

Coriolis Mass Flow Controllers & Meters

Introduction

The ACU20FE series Coriolis mass flow controller/flowmeter is a precision instrument designed for high-precision measurement of fluids by ACCU using Coriolis technology and through a series of technological innovations.Compared with other technologies, Coriolis technology is characterized by the fact that the measurement is completely unaffected by the characteristics of the fluid, resulting in extremely high accuracy. The technique is therefore suitable for very accurate measurement of very small flow rates.
ACU20FE series not only measures mass flow, but also simultaneously measures the density and temperature of a fluid, and offers two different levels of accuracy: For liquids, the measurement accuracy can reach ± 0.25%, For gases, the measurement accuracy can reach ± 0.5%. This level of accuracy is sufficient to meet various experimental scenarios in the laboratory, and it can also calmly deal with complex and ACU20FE Features changeable industrial environments.



▲ ACU20FE Coriolis Mass Flow Controller

Measuring principle

As fluid flows through the sensor circuit, the Coriolis force causes a variable phase shift, which is detected by the sensor and transmitted to an integrated circuit board where a DSP chip processes the signal.
The DSP processor operates on this signal to derive the actual mass flow rate of the fluid. This calculation is proportional to the mass flow rate of the fluid and has nothing to do with how the fluid properties change, so the ACU20FE series of products can measure the mass flow rate of the fluid very accurately.Different from similar instruments, ACU20FE series products integrate PID controller and batch function, which can realize accurate flow control and quantitative feeding.

Product Application

1.Semiconductor manufacturing: Control the flow of gas and liquid to ensure the accuracy of the chip manufacturing process.
2. Food processing: control the flow of food additives, spices, dairy products and other fluids to ensure product quality and consistency.
3. Scientific experiments: chemical reactions, formula experiments and other experiments that require precise control of fluid volume.
4. Petrochemical energy: precise control of the flow of energy reactants and products, improve production efficiency and product quality.
5. Atmospheric monitoring: measurement of pollutant emissions, environmental monitoring.
6. Fuel cell technology: control the flow of hydrogen and oxygen to improve the efficiency and life of fuel cells.
7. Pharmaceutical industry: precisely control the flow of drug ingredients to ensure drug quality and safety.

ACU20FE Features

1. High precision, good repeatability; Because the product directly measures the mass flow of the fluid and has no thermal drift, the temperature shift and time drift can be ignored. The measurement accuracy of gas can reach ± 0.5%F.S, and the measurement accuracy of liquid can reach ± 0.25%F.S, covering most high-precision measurement scenarios.
2. High reliability and stability, can withstand extreme environmental tests: When the product is working in a vibration environment, if it is subject to accidental physical interference such as object collision or bumps, the measurement can be immediately restored to a stable working state within 400 milliseconds.
3. millisecond response and regulation speed: Compared with similar measurement technology, the product takes advantage of Coriolis technology and controls the control and measurement response time within 500ms and 100ms respectively.
4. Can measure high viscosity fluid and high density gas: The product measures a wide range of fluids, such as lubricating oil, liquid nitrogen and other high-density fluids, can also be accurately measured.
5. Function automation: integrated PID controller to adjust the flow: The product integrates a PID controller to accurately adjust the flow, and at the same time, the embedded batch function can realize the flow control and quantitative feeding.
6. Simultaneous output of fluid density and temperature: Not only the mass flow data of the fluid can be obtained, but also the density and temperature data of the fluid can be obtained at the same time, which is suitable for industrial scenarios where the density and temperature of the fluid are measured at the same time.

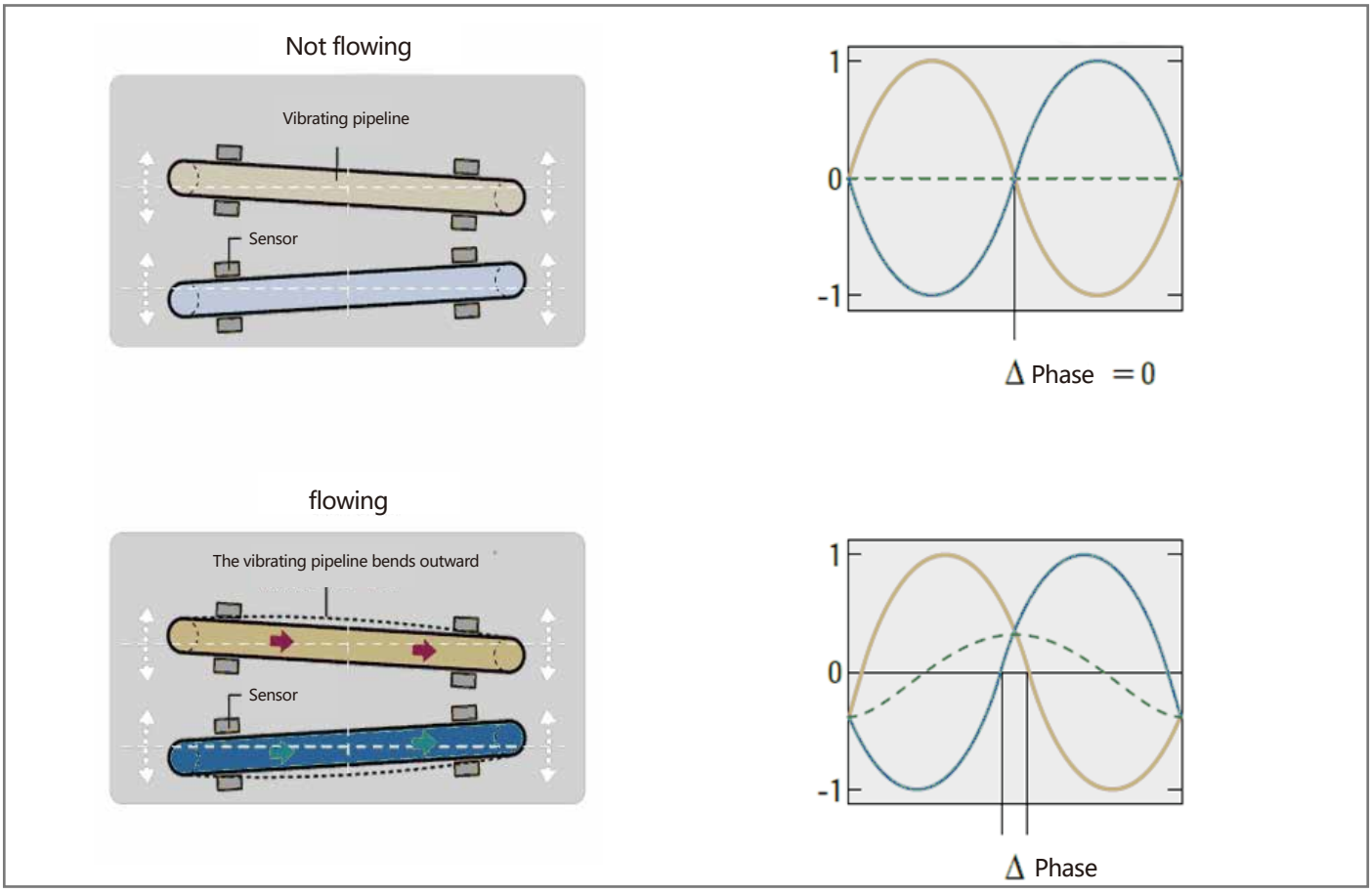
Specification

		ACU20FE Coriolis Mass flow controller	ACU20FE Coriolis Mass flow meter
Technical indicators	Range	0~(40g/h...1000kg/h)	
	Measurement and control rang	controller valve control range50:1	flow meter range ratio100:1
	Accuracy (gas)	±0.5%F.S(full scale)	
	Accuracy (liquid)	±0.25%F.S(full scale)	
	Repeatability	±0.05%F.S	
	Stability	<±0.1%F.S	
	Response time	<0.2s	<0.1s
	Temperature accuracy	±0.5℃	
	Working temperature	0 ~ 70℃	
	Maximum withstand voltage	3MPa/10MPa	
	Leakage rate	$<2\times10^{-9}$Pa m^3 /S	
Mechanical components	Base material	304L/316L	
	Connector	φ8、φ10、φ12，sleeve, flange installation, etc	
	External seal material	metal	
	Shell protection level	IP40	
	Installation position	Installation in any position	
Electrical Performance	Monochrome LED display	Display traffic and Settings at the same time	
	Electrical connection	DB9 hole, RJ11, 5.5×2.1 power quick plug	
	Display status	With or without LCD display	
	Digital quantity	RS232/485 Modbus protocol、Profibus protocol、EtherCAT protocol, etc	
	Analog quantity	0 ~ 5V、4-20mA、1-5V	
	Power supply	±15VDC，24VDC	

ModelNo.&Ranges

Product Picture						
Models	ACU20FE-SC	ACU20FE-LC	ACU20FE-MC	ACU20FE-BC	ACU20FE-XC	ACU20FE-XC
Ranges	0~(40g/h...50kg/h)	0~(40g/h...50kg/h)	0~(50kg/h...100kg/h)	0~(100kg/h...300kg/h)	0~(300kg/h...1000kg/h)	0~(300kg/h...1000kg/h)
Product Picture						
Models	ACU20FE-SM	ACU20FE-LM	ACU20FE-MM	ACU20FE-BM	ACU20FE-XM	
Ranges	0~(40g/h...50kg/h)	0~(40g/h...50kg/h)	0~(50kg/h...100kg/h)	0~(100kg/h...300kg/h)	0~(300kg/h...1000kg/h)	

Sensor waveform



Modelchart

ACU20FE L C M N 10KG A1 B1 5 8 C

Serial number

Mode

S	Small
L	Low
M	Middle
B	Big
X	Huge

Product type

C	Mass flow controller
M	Mass flow meter

Pressurization

M	3MPa
Z	10MPa

Display

N	Without display
X	With display

Ranges

40g/h 10kg/h 50kg/h	S or L
60kg/h 80kg/h 100kg/h	M
150kg/h 200kg/h 300kg/h	B
400kg/h 500kg/h 800kg/h 1000kg/h	X

Input signal

A1	0~5VDC
A2	4~20mA
A3	1~5VDC

Output signal

B1	0~5VDC
B2	4~20mA
B3	1~5VDC

Power supply

5	±15VDC
4	24VDC

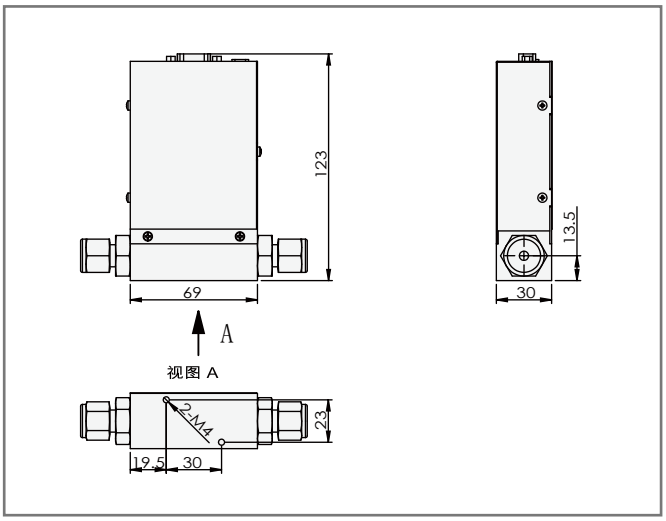
Communication

8	RS485
2	RS232

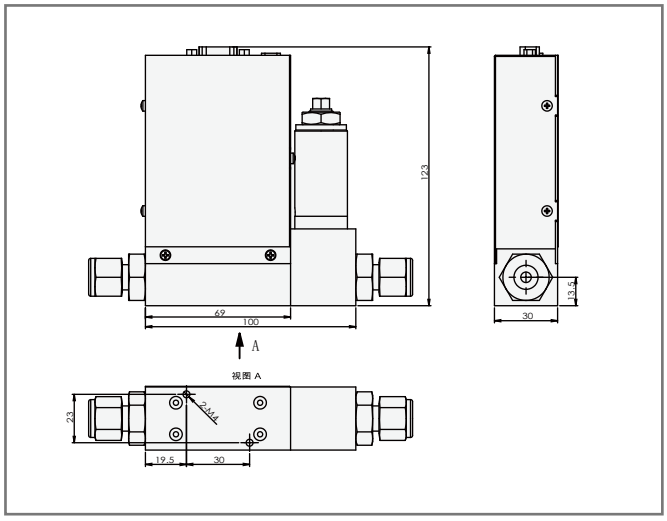
Connectors

C	φ8
D	φ10
E	φ12
Y	Others

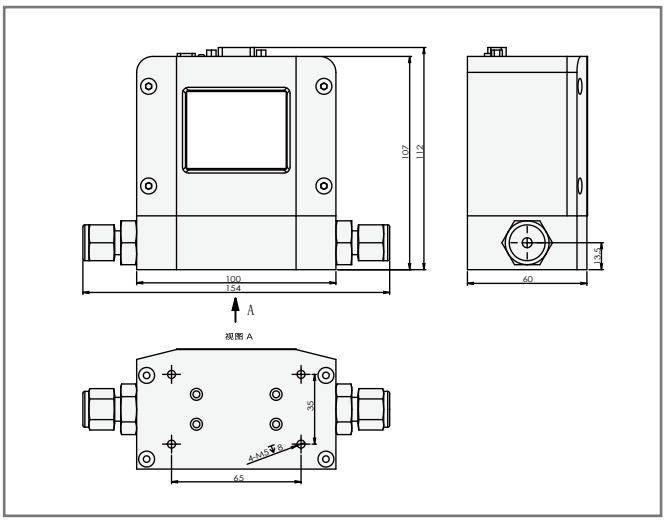
Dimensions(mm)



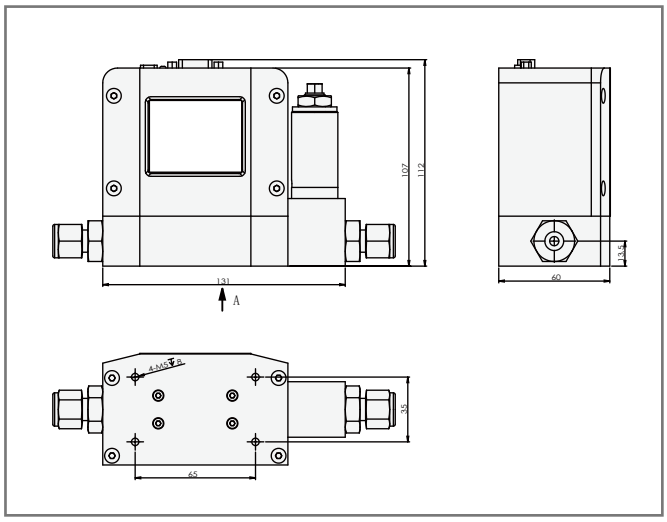
▲ ACU20FE-SM Coriolis Mass Flow Meter



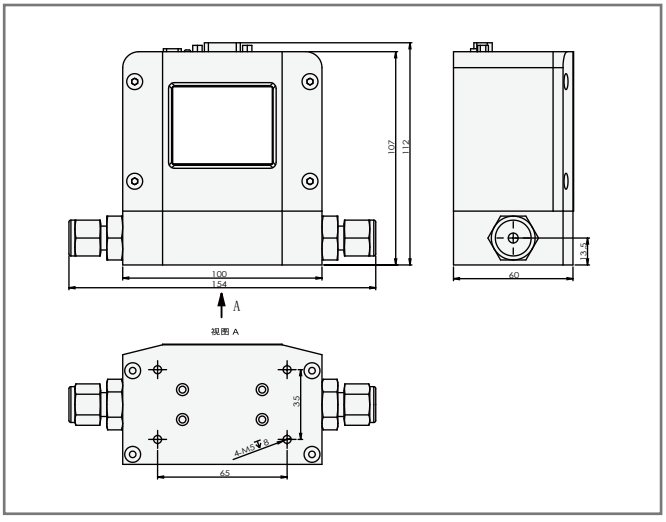
▲ ACU20FE-SC Coriolis Mass Flow Controller



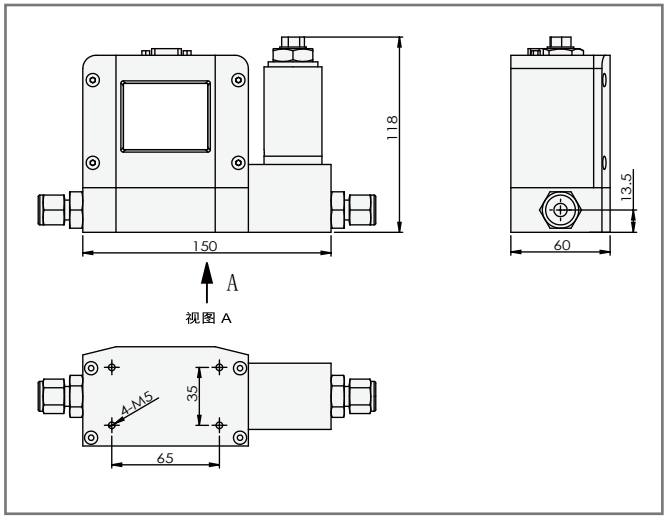
▲ ACU20FE-LM Coriolis Mass Flow Meter



▲ ACU20FE-LC Coriolis Mass Flow Controller

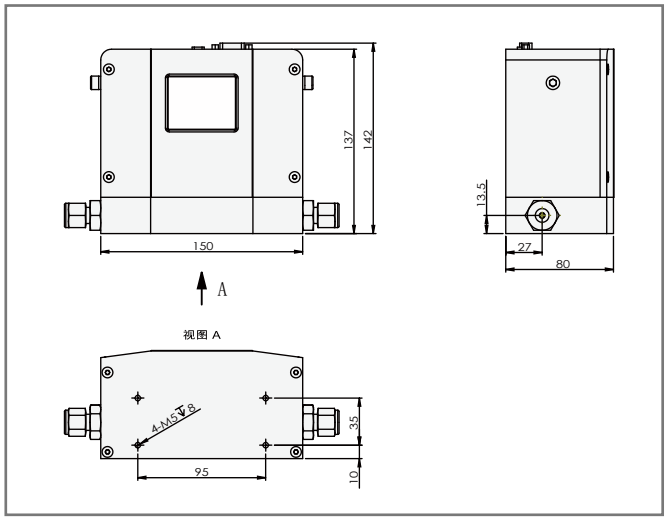


▲ ACU20FE-MM Coriolis Mass Flow Meter

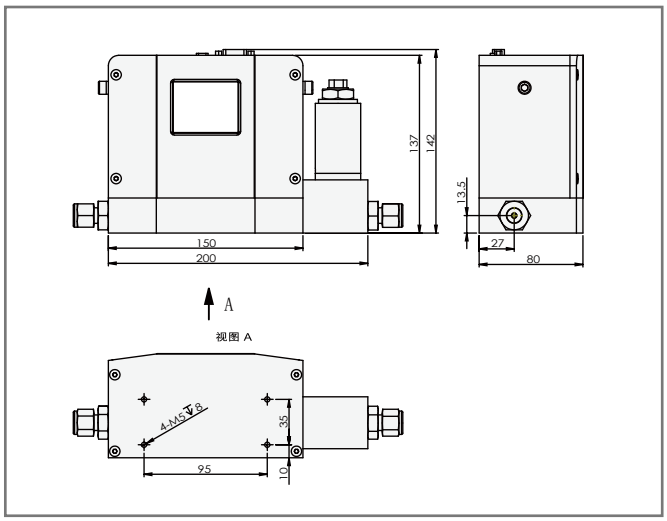


▲ ACU20FE-MC Coriolis Mass Flow Controller

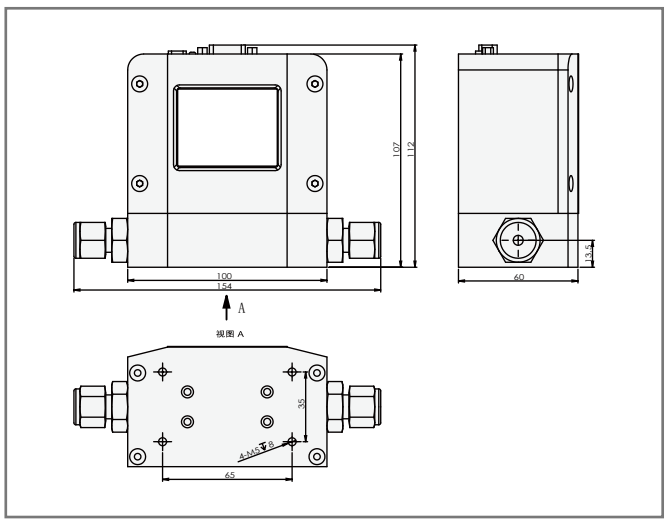
Dimensions(mm)



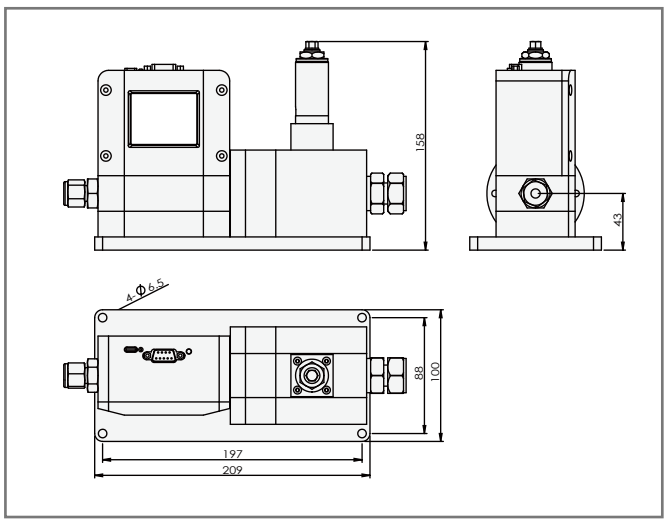
▲ ACU20FE-BM Coriolis Mass Flow Meter



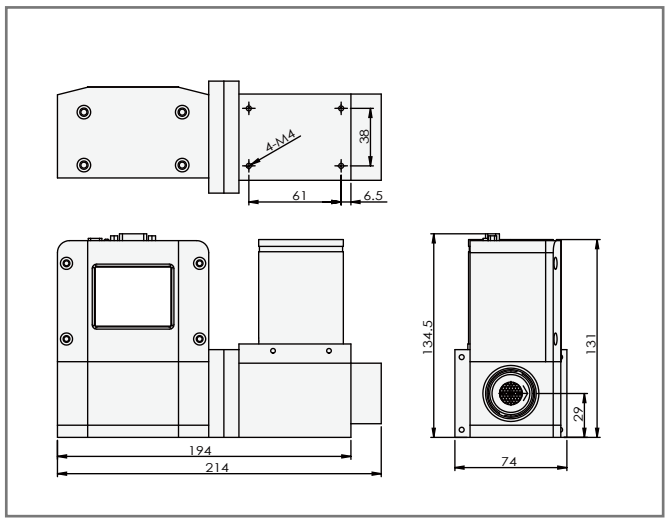
▲ ACU20FE-BC Coriolis Mass Flow Controller



▲ ACU20FE-HM Coriolis Mass Flow Meter



▲ ACU20FE-XC Coriolis Mass Flow Controller



▲ ACU20FE-XC Coriolis Mass Flow Meter
(low differential pressure valve)