ACCU
Measurement & Control

ACU10L Series
Liquid Flow Controller/Flow Meter







Introduction

ACU10L series liquid mass flow controller/flowmeter is a precision instrument developed by ACCU specifically for accurate measurement of liquids. Based on the principle of differential pressure, ACCU uses the exclusive research and development of internal compensation laminar flow pressure difference technology, so that the liquid can maintain the measurement accuracy and accuracy under the condition of large flow.

The liquid passes through the fine pipes inside the sensor. Due to the shape of the pipes and the characteristics of the liquid, the laminar flow state is maintained when the liquid flows. Due to the limitation of liquid viscosity and pipe size, the laminar flow will generate pressure difference. In order to maintain the laminar flow movement of the fluid in a large flow range, the internal compensation laminar flow pressure difference technology is used to improve the measurement accuracy by decomposing the large flow into multiple small flows and measuring the pressure difference of each small flow.

In the specific control operation, the operator sets the required flow value through the display screen or the communication interface, and the controller uses the PID control algorithm to adjust the opening of the control valve according to the deviation between the actual flow and the set value. Changes in the opening of the control valve will change the flow of liquid through the sensor, so that the actual flow gradually close to the set value. Under the continuous adjustment of the control valve, the actual flow is finally stabilized near the set value.

Product Application

1. Chemical production: monitor and control the flow of various chemical raw materials and products, such as liquid chemicals, solvents, adhesives, etc.
2. Biopharmaceuticals: monitor and control the flow of liquids in the pharmaceutical production process, such as culture media, pharmaceutical solutions, disinfectants, etc.
3. Food and beverage: monitor and control the flow of liquids in the production of food and beverage, such as milk, juice,beverages, condiments, etc.
4. Laboratory analysis: used for liquid flow control of laboratory analysis equipment, such as chromatograph, mass spectrometer, etc.
5. Water quality monitoring: used to monitor the water quality parameters of rivers, lakes, groundwater and other water bodies, such as flow rate, flow rate, etc.
6. Environmental monitoring: used to monitor environmental parameters such as industrial emissions and air pollution, such as pollutant concentration and emissions.

Operation Status

	Liquid Mass Flow Meter	Liquid Mass Flow Controller
Working temperature	+10 to +50 ℃	
Maximum working pressure	1 MPa	
Requirements for installation method/direction	No valve	> 1L/min range, the valve must be installed vertically
Valve class	Valve normally closed	
Protection level	IP40	
Material	Stainless Steel	

Signal

Monochrome LCD display	Simultaneous display of flow, setting
Digital output signal	RS-485/232,MODBUS protocol
Analog input signal	0-5 Vdc / 4-20 mA
Analog output signal	0-5 Vdc / 4-20 mA
Electrical signal interface	DB15
Supply voltage	±15VDC，24VDC
Supply current	0.750 Amp

Specifications

Range	Low：0~(2SCCM...1SLM) Middle：0~(1SLM...5SLM) Large：0~(5SLM...20SLM)	
Accuracy	± 1% F.S.	
Repeatability	± 0.2% F.S.	
Zero Drift & Full Scale Drift	0.02% F.S./ ℃/Atm	
range adjustable ratio	100:1	50:1
Maximum measurable flow	100% F.S (Controllable)	
Typical Response Time	200 ms(Adjustable)	

Model chart

ACU10L-	L	C	M	N	020C	A1	B1	5	8	V	B

Serial number

Ranges

L	Low
M	Middle
B	Big

Product type

C	Mass Flow Controller
M	Mass Flow Meter

Pressure range

M	1MPa

Display Status

N	Without LCD display
X	With LCD display

Flow range

010C	10 SCCM	L
020C	20 SCCM	
030c	30 SCCM	
050C	50 SCCM	
100C	100 SCCM	
200C	200 SCCM	
300C	300 SCCM	
500C	500 SCCM	
001L	1 SLM	
002L	2 SLM	M
003L	3 SLM	
005L	5 SLM	
010L	10 SLM	B
020L	20 SLM	
000L	User	
	Specified	

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

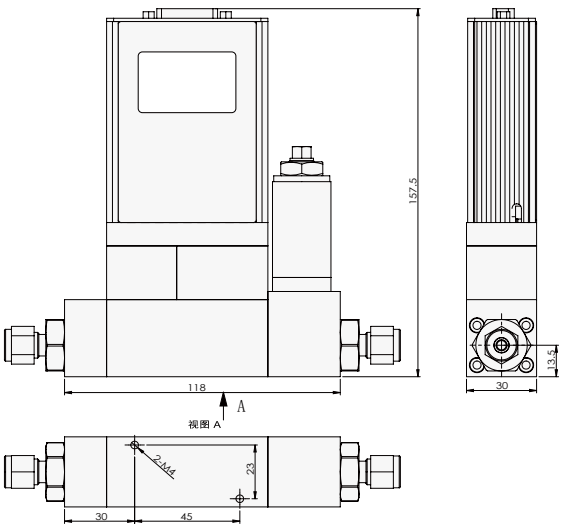
Sealing material

P	FFKM
V	Vilton
N	NBR
E	EPDM
Y	Others

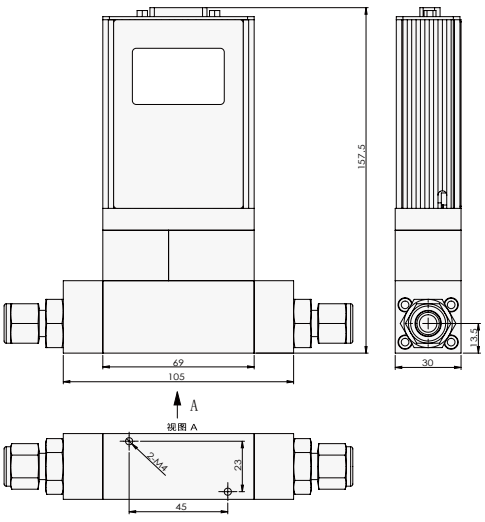
Connectors

A	φ3
B	φ6
C	φ8
D	φ10
E	φ12
F	1/8″
G	1/4″
L	Flange
Y	Others

Dimensions(mm)

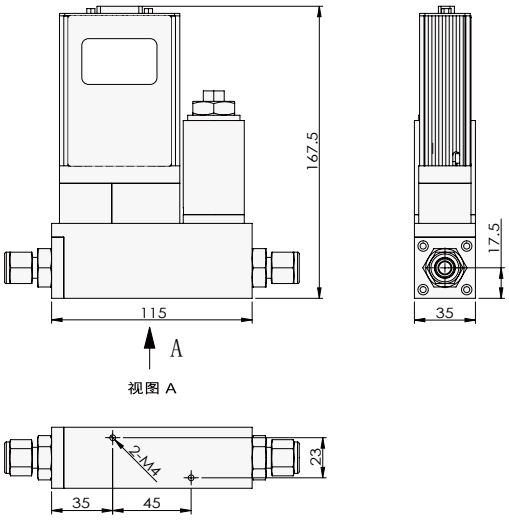


▲ ACU10L-LC Liquid Flow Controller(LOW)

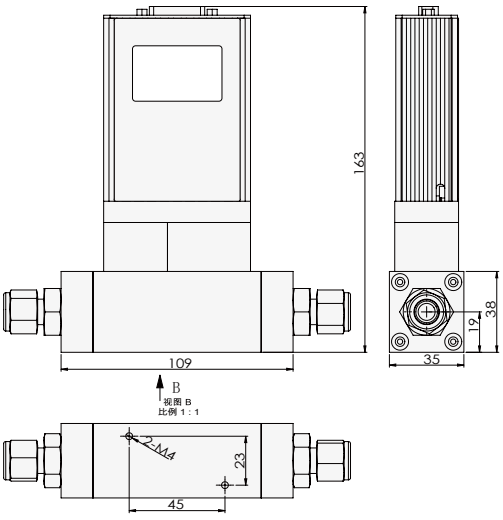


▲ ACU10L-LC Liquid Flow Meter(LOW)

Dimensions(mm)

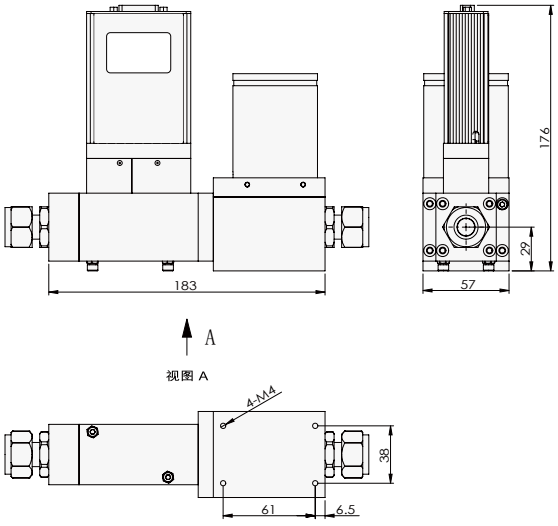


▲ ACU10L-MC Liquid Flow Controller(Middle)

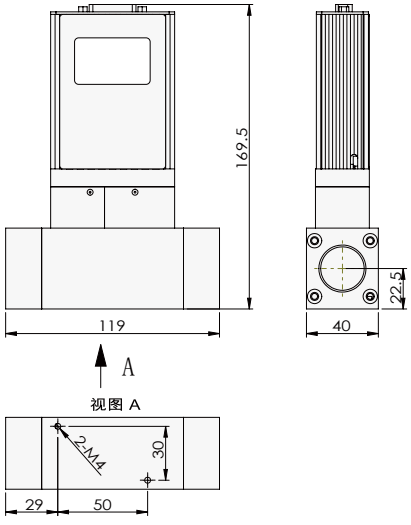


▲ ACU10L-MM Liquid Flow Meter(Middle)

Dimensions(mm)



▲ ACU10L-BC Liquid Flow Controller(Big)



▲ ACU10L-BM Liquid Flow Meter(Big)

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