ACU20FDH High-Temperature Thermal Mass Flow Controllers & Meters

Introduction

ACCU(Beijing Accu Flow Technology Co.,Ltd.) is a high-tech enterprise specializing in the development of thermal principle, differential pressure laminar flow principle, and Coriolis principle mass flow controllers/monitors, as well as pressure controllers. The company's products can directly measure the mass flow of gases, liquids, and supercritical media. The minimum liquid range is 20g/h, and the maximum gas range is 10,000L/min, which is suitable for laboratories and complex industrial environments. At the same time, ACCU has rich practical experience in flow control systems and solutions, serving industries such as chemicals, semiconductors, and solar energy.

Performance and principle

The ACU20FDH mass flow controller is composed of components such as a mass flow sensor, laminar layering components, flow controller regulating valve and amplification control circuit. It is made by using the heat transfer effect of flowing fluids to change the thermal conduction distribution effect of measuring the temperature distribution of the capillary wall.
The ACU20FDH high-temperature thermal mass flow controller adopts the thermal principle. Through a split design, the control module and sensor module are separated, and connected by high-temperature cables. The sensor part adopts the constant power sensor principle. When the temperature changes, it adds auxiliary heating to ensure the linearity of the sensor, so as to meet the complex and variable measurement and control requirements.
The ACU20FDH series high-temperature thermal mass flow meter and flow controller comes with a touch screen, allowing users to control the set value and PID valve adjustment simply by operating the screen. At the same time, it provides analog input/output and RS-485 digital communication.

Applications

The ACU20FDH instrument can be applied to process fluid measurement or control systems in the manufacturing of silicon-based semiconductor devices, fiber optic production - MCVD, low vapor pressure materials, semiconductor processing, and fuel cell technology.

ACU20FDH Basic characteristics

- Direct measurement of mass flow rate
- Accuracy can reach ± 0.5% of Full Scale
- The measurement of medium temperature can reach 150℃
- Fast response speed and fast regulation speed
- High precision and good repeatability
- Integrated PID controller for regulating flow rate
- good value for money
- High reliability, long lifespan
- No thermal drift, negligible temperature drift and time drift
- Tubular diversion, not easily blocked
- Suitable for various high and low pressure pipelines
- Short warm up time, small zero drift, and high reliability



▲ ACU20FDH-LC High-Temperature Thermal MFC

Specifications

Technical indicators		Mass Flow Controller	Mass Flow meter
	Range	Gas:0~(2SCCM...3000SLM)，Steam: 0~ (2SCCM...500SLM)	
	control range	Controller valve control range50:1	flowmeter range ratio100:1
	Accuracy	±0.5%F.S. (Full scale)	
	Repeated accuracy	±0.2%F.S.	
	Stability	<±0.2%F.S.	
	Respon se time	200 ms (adjustable)	
	Working temperature	Overheating section: (90~150℃); Control section: 0~70℃	
	Maximum withstand voltage	1MPa	
	leakage rate	1×10^{-9} Pa m^3 /S	
Mechanical components	Base Material	stainless steel	
	Connector	φ8, φ10, φ12, LOK, pagodas, quick plug-inVCR, flange installation, etc	
	Sealing material	FFKM,Vilton,NBR,EPDM,Metal seal,Others	
	Enclosure protection class	IP40	
	Installation position	Mountable in any orientation	
Electrical Performance	Monochrome LED display screen	Simultaneously display the flow rate and configuration parameters.	
	Electrical connection	DB9 hole	
	Display Status	With LCD, without LCD	
	Digital quantity	RS232/485,Modbus protocol, Profibus protocol, EtherCAT protocol, Profinet protocol, FF protocol	
	Analog quantity	0～5V、4-20mA、1～5V	
	power supply	24VDC、±15VDC	
	High-temperature cable length	2 meters	

Model chart

ACU20FDH | L | C | M | N | 300L | A1 | B1 | 5 | 8 | V | C

Serial number

Range select

L	Low
M	Middle
B	Big

Product Type

C	Mass flow controller
M	Mass flow meter

Pressurization

M	3MPa
Z	10MPa
	(Only for flow meters)

Display

N	Without display
X	With display

Ranges

002C	2 SCCM	Gas
005C	5 SCCM	
010C	10 SCCM	
...	...	
2000L	2000 SLM	
3000L	3000 SLM	
002C	2 SCCM	Steam
005C	5 SCCM	
010C	10 SCCM	
...	...	
300L	300 SLM	
500L	500 SLM	
0000L	User Specified	

Input signals

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

Output signals

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

Power

5	±15VDC
4	24VDC

Communication

8	RS485
2	RS232

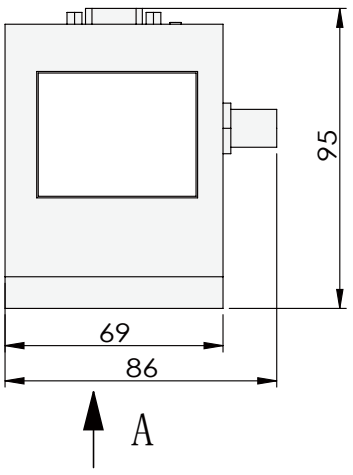
Sealing material

P	FFKM
V	Vilton
N	NBR
E	EPDM
Y	Others

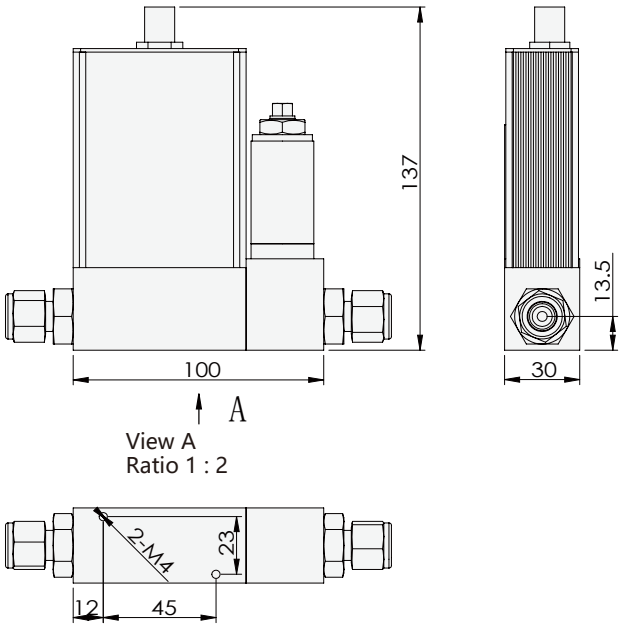
Connectors

C	φ8
D	φ10
E	φ12
Y	Others, contact with manufacturer

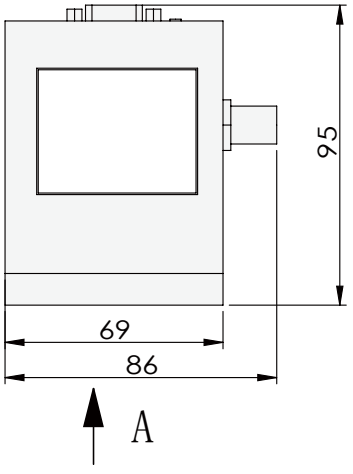
Dimensions (mm)



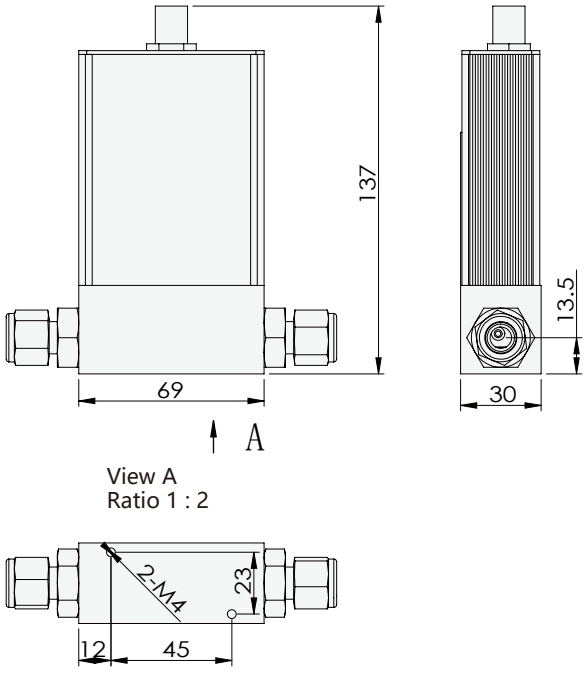
▲ ACU20FDH-LC Thermal high-temperature motherboard base section



▲ ACU20FDH-LC High-temperature thermal Mass Flow Controller (Low)

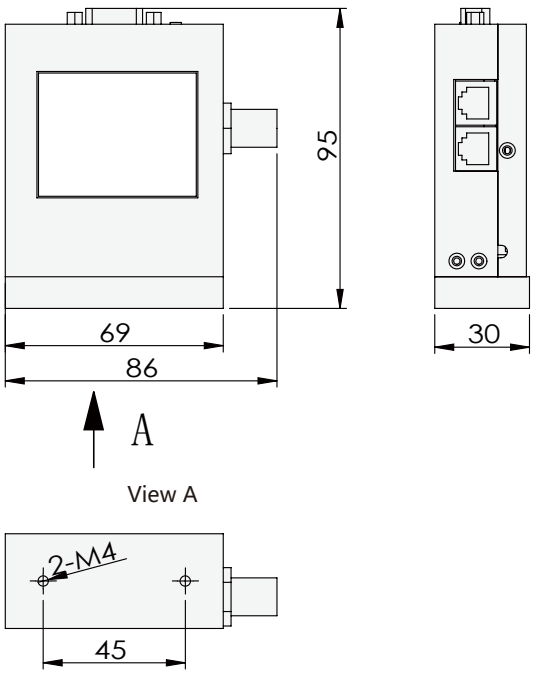


▲ ACU20FDH-LM Thermal high-temperature motherboard base section

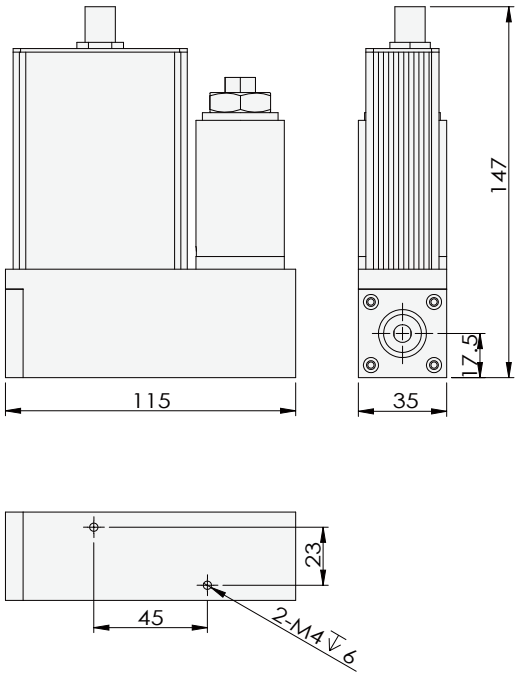


▲ ACU20FDH-LM High-temperature thermal Mass Flow meter (Low)

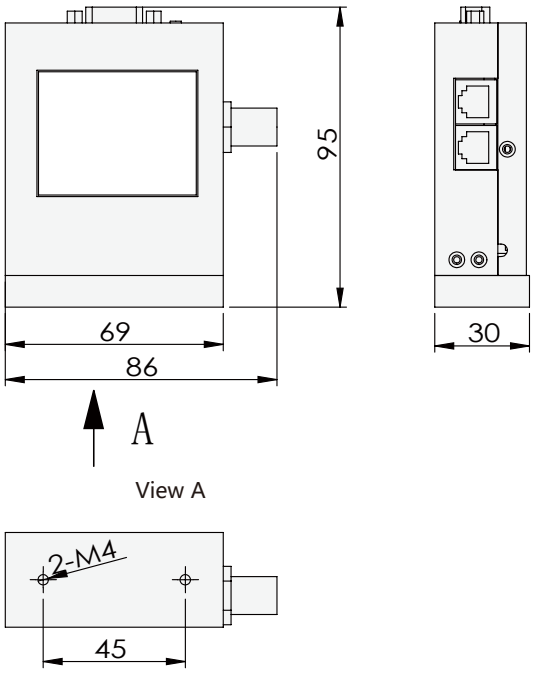
Dimensions (mm)



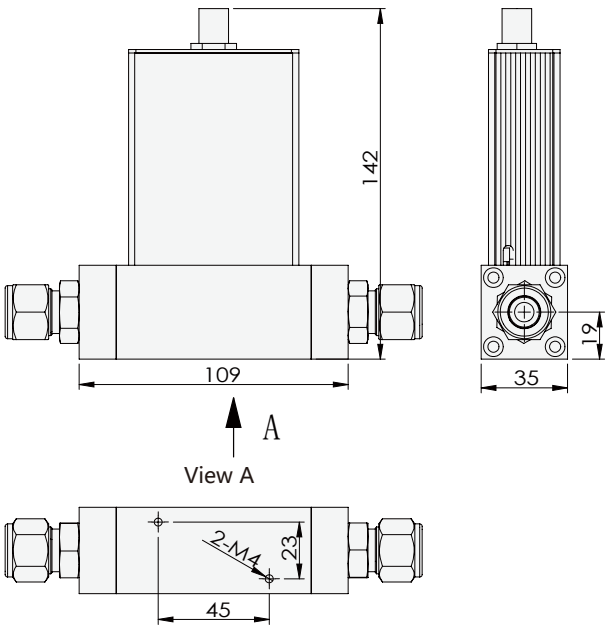
▲ ACU20FDH-MC Thermal high-temperature motherboard base section



▲ ACU20FDH-MC High-temperature thermal Mass Flow Controller (Middle)

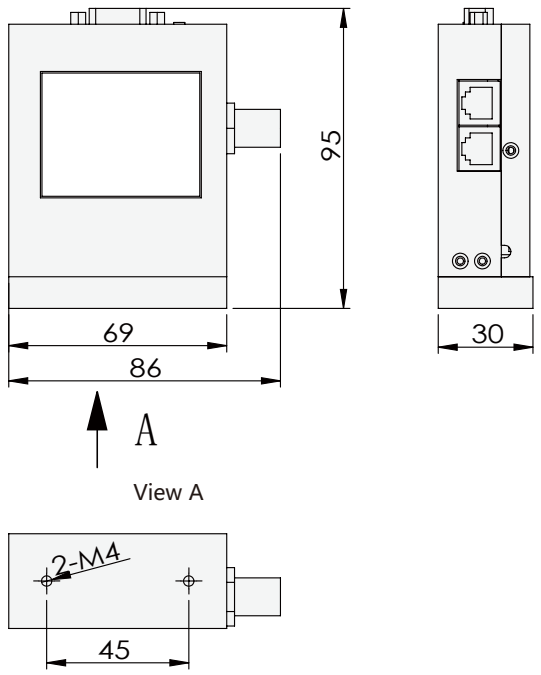


▲ ACU20FDH-MM Thermal high-temperature motherboard base section

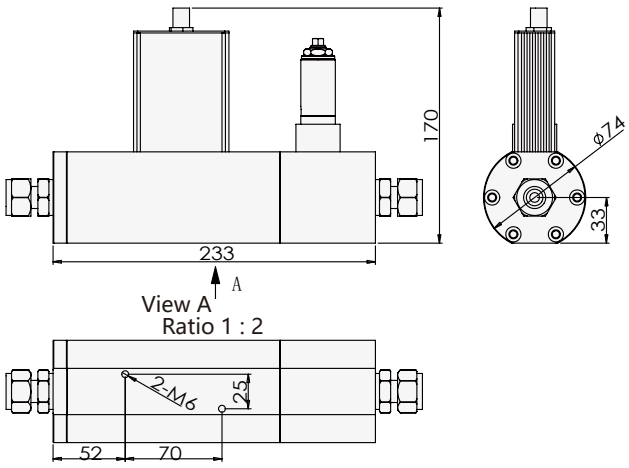


▲ ACU20FDH-MM High-temperature thermal Mass Flow meter (Middle)

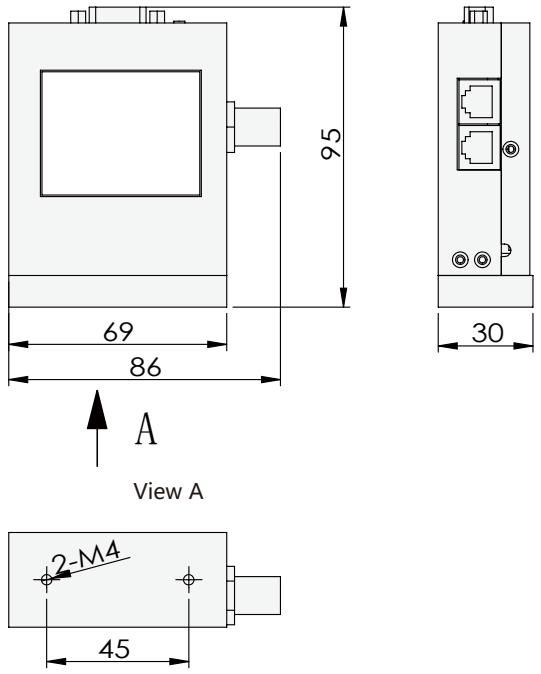
Dimensions (mm)



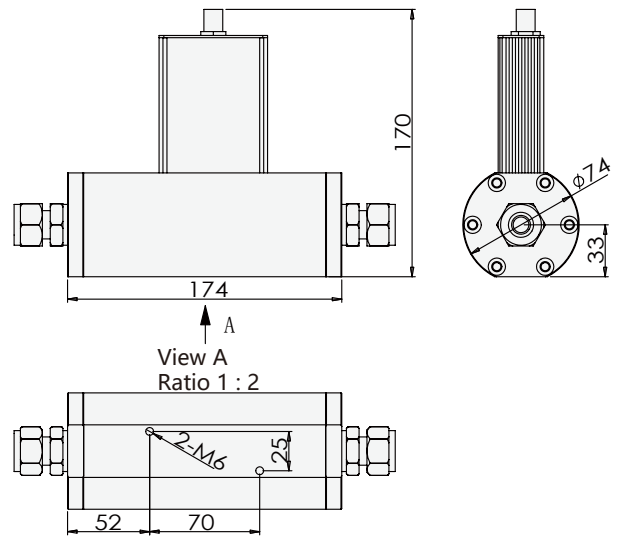
▲ ACU20FDH-BC Thermal high-temperature motherboard base section



▲ ACU20FDH-BC High-temperature thermal Mass Flow Controller (Big)



▲ ACU20FDH-BM Thermal high-temperature motherboard base section



▲ ACU20FDH-BM High-temperature thermal Mass Flow meter (Big)