



Product Features

- ◆ The sensor has high sensitivity and very small initial flow rate
- ◆ The sensor chip uses thermal mass flow measurement, without temperature and pressure compensation, to ensure the high precision measurement of the sensor
- ◆ Multiple sensors are integrated on a single chip, giving it a range ratio of 100:1 or more
- ◆ Wall-mounted installation, no direct pipe section requirements, easy to install and use
- ◆ The output method is flexible. It can actively upload data through the communication interface (RS232) or query the output data from the host computer (RS232/ 1² C), or output linear analog voltage through the analog interface
- ◆ High zero point stability
- ◆ Full range of high stability, high accuracy and excellent repeatability
- ◆ Low power consumption, low voltage loss
- ◆ Fast response

Brief Introduction

The AFS5001 small-flow gas mass flow sensor is specifically designed for measuring and process control of various low-flow gases. These sensors utilize our company's independently developed Micro-Electro-Mechanical System (MEMS) flow sensing chip, making them suitable for clean and dry gases. With unique packaging technology, they enable measurement across different flow ranges within the same pipe diameter. Featuring low cost, easy installation, and no temperature/pressure compensation requirements, these sensors can replace traditional volumetric or differential pressure type flow sensors. Equipped with multiple signal outputs and communication interfaces, they allow flexible configuration and parameter queries through standardized protocols.

Figure 1, Hot Head Control Circuit

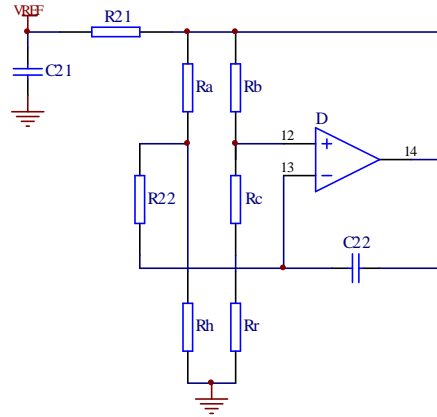


Figure 2, Sensor Bridge Circuit

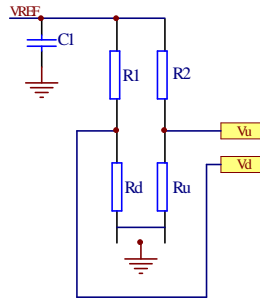
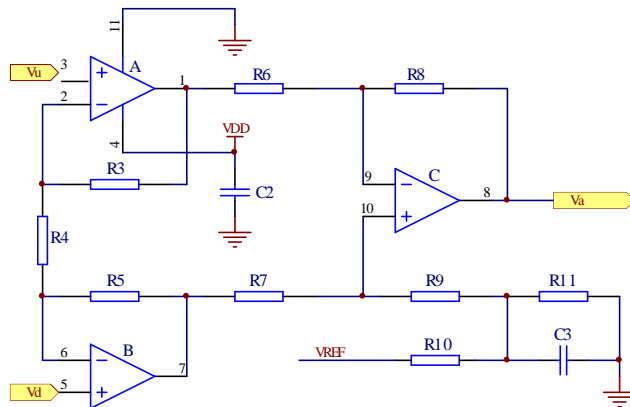


Figure 3, Differential Amplifier Circuit



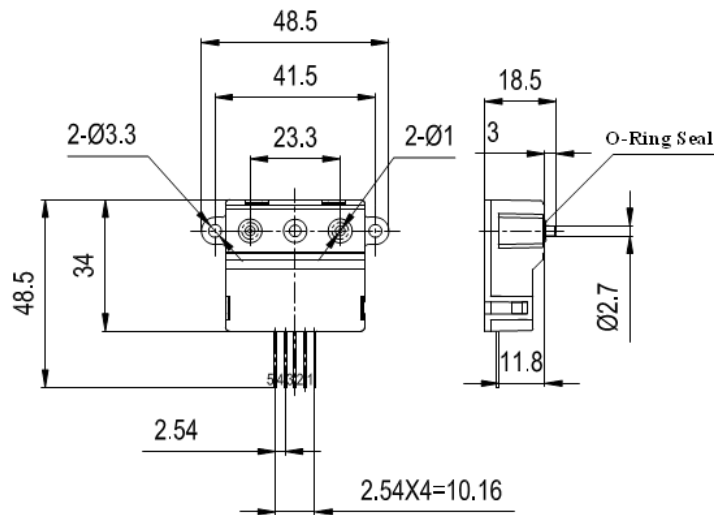
performance index

Scope of traffic	0~20,50,200,500,1000, or customized according to customer needs	scm
Ratio of ranges	>100: 1	
accuracy	$\pm (1.5 \pm 0.2FS)$	%
repetitiveness	± 0.75	% indication
Zero point output drift	± 30	mV
Output drift	0.12	% / °C
response time	100 (By default, 50,100,200,500,1000 can be set)	ms
working power supply	8~18Vdc, 50mA	
Mode of output	Linear, RS232, I ² C, analog voltage 0.5~4.5Vdc	
Maximum flow pressure loss	900	Pa
working pressure	-0.08~+0.5	MPa
working temperature	-5~+45	°C
storage temperature	-20~+55	°C
Humidity at work	<95	%RH
mechanical interface	M, Rc, 4mm, 6mm quick connector (with adapter module)	
Calibration method	Air (or other gases), 20. C, 101.325kPa	
weight	17.5	g

remarks :

1. The sensor needs to be preheated for one minute before use;
2. The maximum flow change to prevent damage is: for sensors with full range of 20scm and 50scm: 500scm/sec; for sensors with full range of 200scm, 500scm and 1000scm: 3SLPM/ sec.

installation size

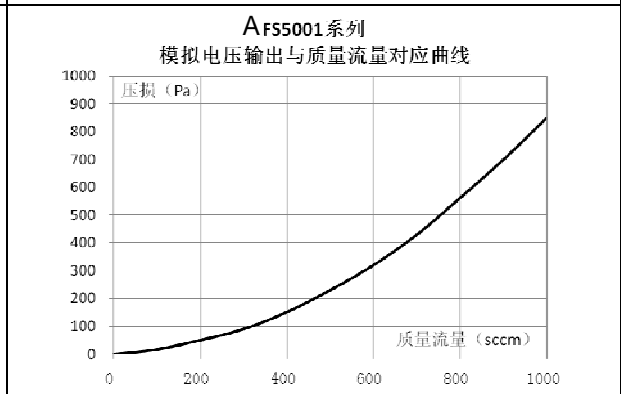
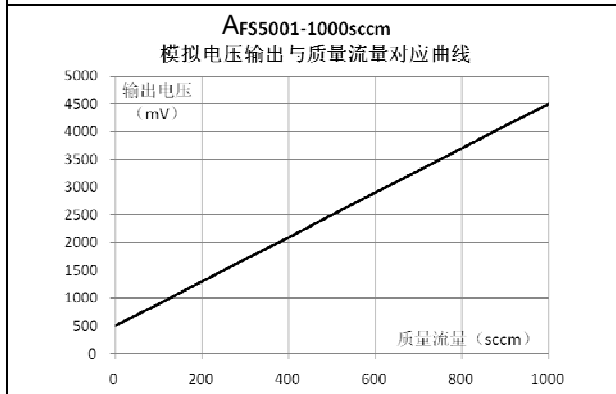
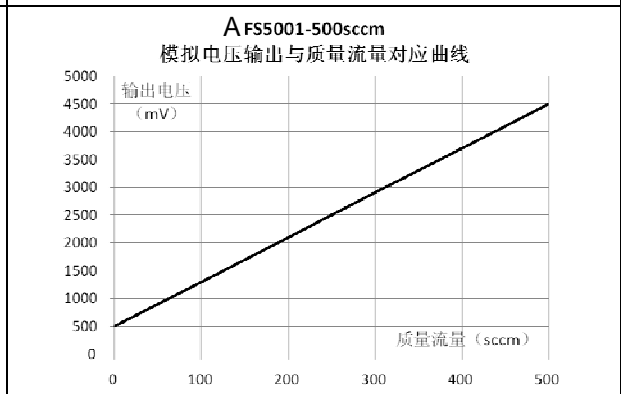
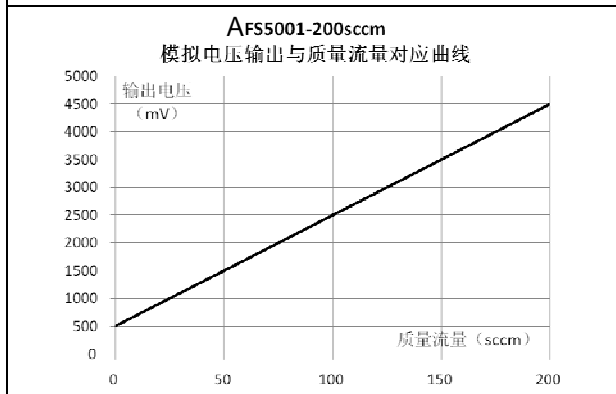
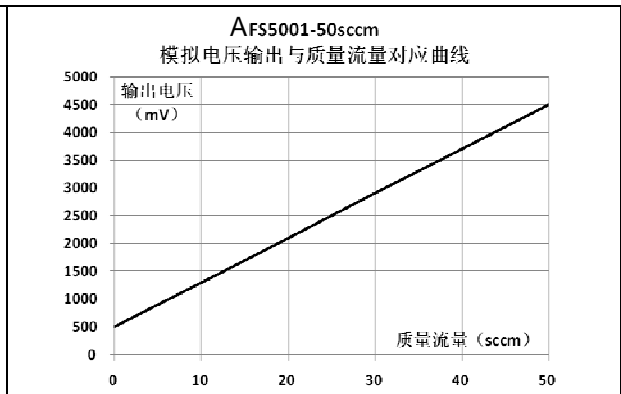
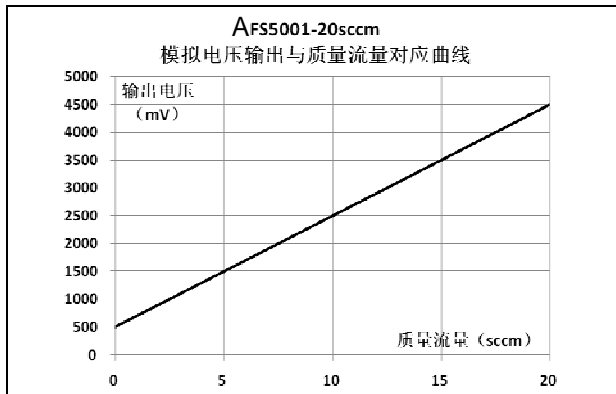


Definition of wiring

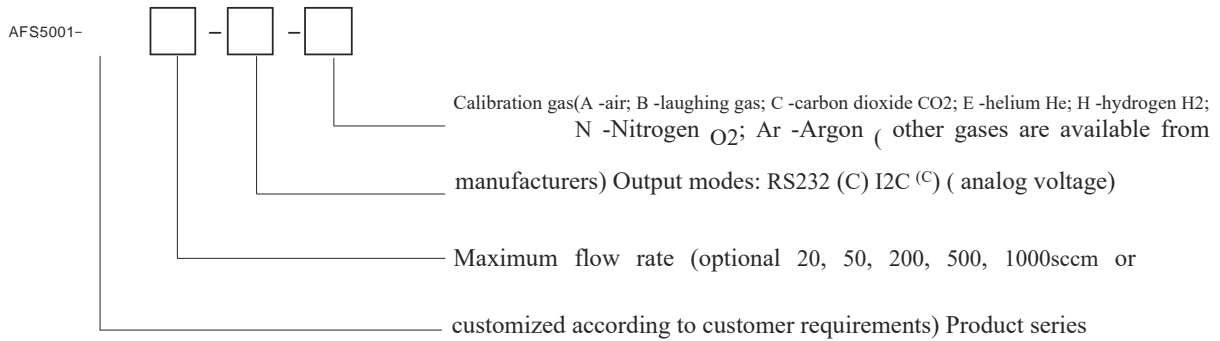
Pin number	Pin name	Pin definitions
1	TX	RS232 digital signal send / SDA (I ² C)
2	Vout	Simulated output (+)
3	VCC	Input power supply is (+)
4	GND	Power/ Signal ground (-)
5	RX	RS232 digital signal receiver/SCL (I ² C)

Analog voltage output and typical output curve

FS5001-20sccm		FS5001-50sccm		FS5001-200sccm		FS5001-500sccm		FS5001-1000sccm	
flow mass sccm	analog voltage mV	flow mass sccm	analog voltage mV	flow mass sccm	analog voltage mV	flow mass sccm	analog voltage mV	flow mass sccm	analog voltage mV
0	500	0	500	0	500	0	500	0	500
5	1500	10	1300	25	1000	100	1300	100	900
10	2500	20	2100	50	1500	200	2100	200	1300
15	3500	30	2900	75	2000	300	2900	300	1700
20	4500	40	3700	100	2500	400	3700	400	2100
		50	4500	125	3000	500	4500	500	2500
				150	3500			600	2900
				175	4000			700	3300
				200	4500			800	3700
								900	4100
								1000	4500

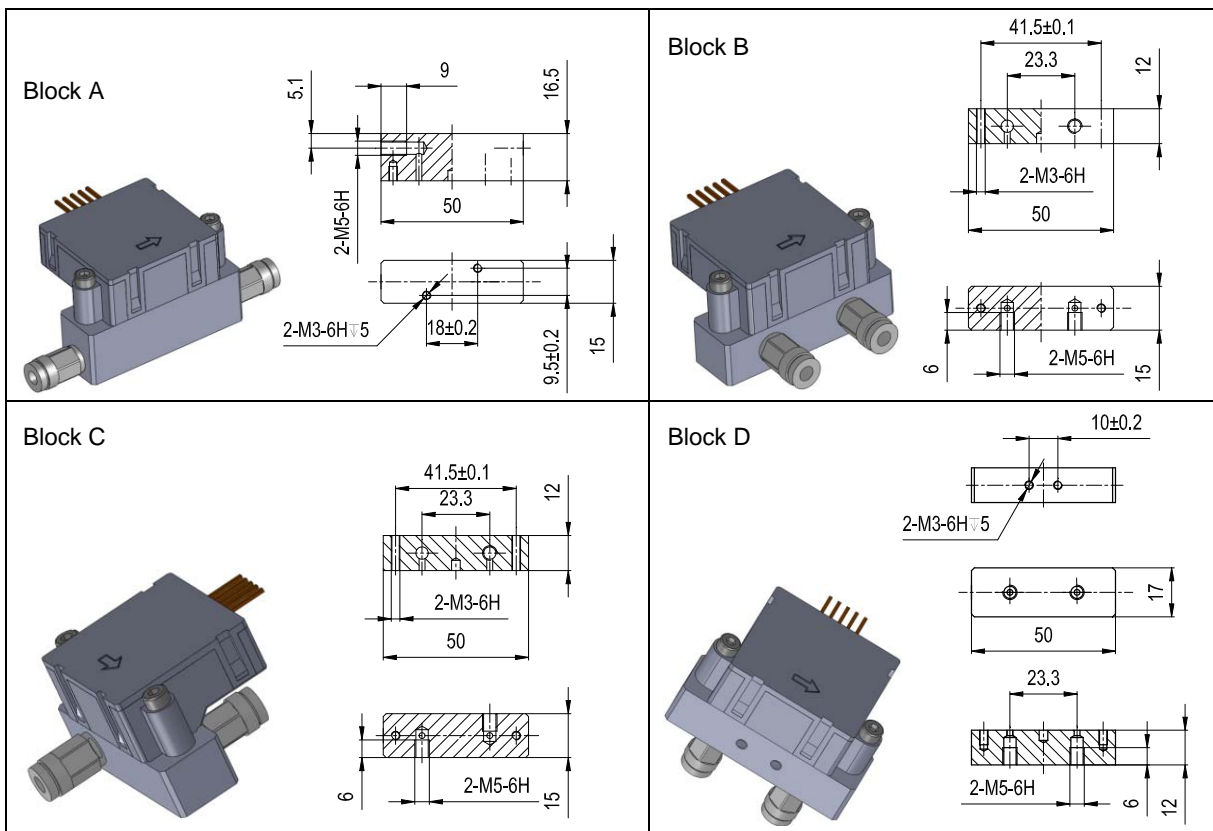
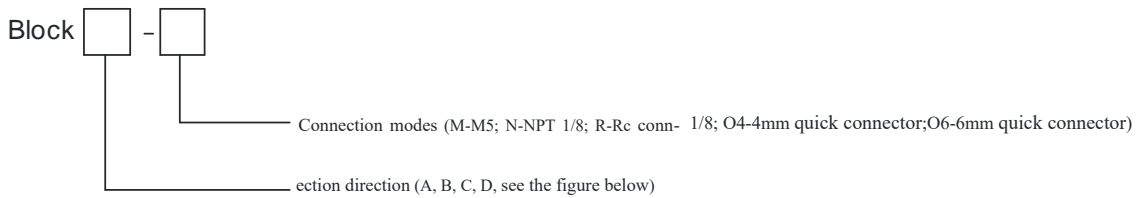


product types choosing



Transceiver Module

In order to facilitate the use of sensors, we provide four optional adapter modules according to different installation forms and air intake and exhaust directions:



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