



### Product Features

- ◆ The sensor has high sensitivity and very small initial flow rate
- ◆ The sensor chip adopts 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, which greatly improves the range ratio of the sensors;
- ◆ The sensor has high zero point stability
- ◆ High stability across the full range
- ◆ Full range of high accuracy and excellent repeatability
- ◆ Low power consumption <100 mW
- ◆ Low pressure loss <1300 Pa
- ◆ Fast response time 8 msec

### Brief Introduction

The FS1015 series microcomputer-based gas mass flow sensors are specifically engineered for medical gas measurement and process control applications. Featuring our proprietary Microelectromechanical System (MEMS) flow sensing chip, these devices deliver cost-effective solutions for clean gas monitoring. With simplified installation and no temperature/pressure compensation requirements, they effectively replace traditional volumetric or differential pressure flow meters while maintaining operational efficiency.

### Circuitous Philosophy

Figure 1, Sensing Bridge Circuit

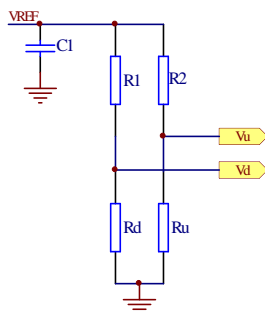


Figure 2, Hot Head Control Circuit

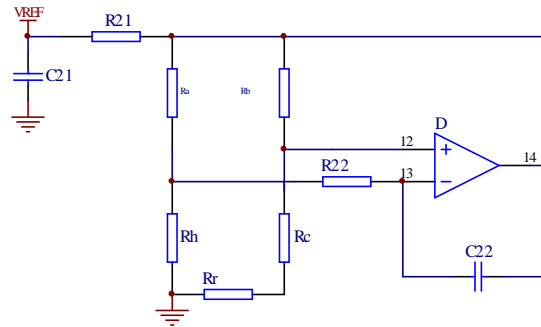
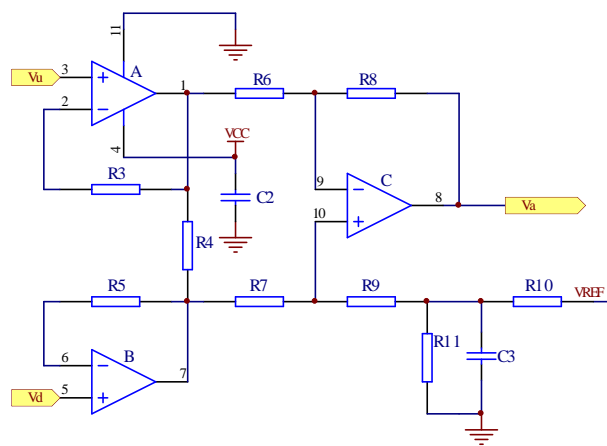


Figure 3, Differential Amplifier Circuit

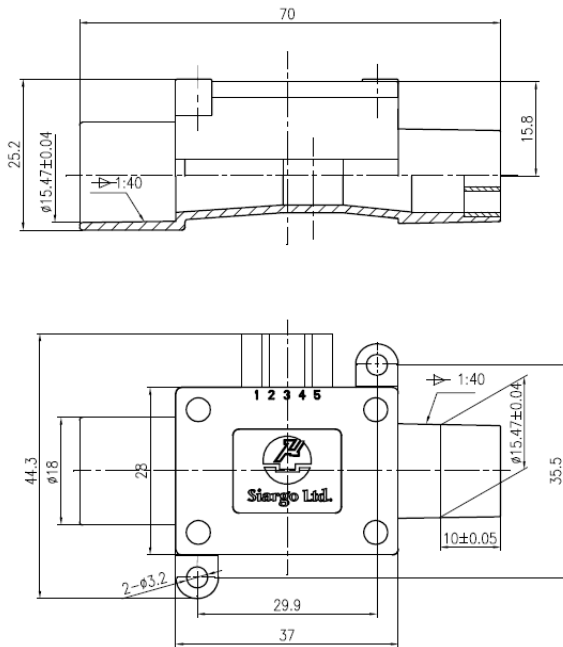


### Performance Index

product	FS1015CL	unit
Scope of traffic	0~150	SLPM
Ratio of ranges	>100: 1	
accuracy	$\pm (1.5 \pm 0.2FS)$	%
repeatability	$\pm 0.75$	%
Zero point output drift	$\pm 30$	mV
Output drift	0.12	%/
response time	8	ms
working power supply	5Vdc $\pm 1\%$	
Mode of output	Simulated voltage, 0.5~4.5Vdc	
Maximum flow pressure loss	1300	Pa
maximum working pressure	0.2	MPa
working temperature	-10~+55	
storage temperature	-20~+65	
Humidity at work	<95	%RH
Electrical interface	5-pin socket, AMP 103956-4	
mechanical interface	1 SO-15mm	
Calibration method	Nitrogen, 20°C, 101.325kPa	
weight	21.5	g

Note: The sensor needs to be preheated for one minute before use.

installation size



Definition of Wiring

pin	Pin name	Pin definitions
1	SDA	I <sup>2</sup> C data line
2	vout	Simulated output (+)
3	VCC	Input power supply is (+)
4	GND	Power/Signal ground (-)
5	SCL	I <sup>2</sup> C clock line

- Note: 1. The I<sup>2</sup>C function of this sensor is only used for internal EEPROM access and can not be used for measurement data transmission.
2. For specific I<sup>2</sup>C communication protocols, please contact Xixiang Microelectromechanical Systems Co., LTD.

Analog voltage output and typical output curve

Standard traffic SLPM	FS1015CL - 150SLPM		
	typical case	maximum	minimum
0	500	510	490
30	1300	1320	1280
60	2100	2132	2068
90	2900	2944	2856
120	3700	3756	3644
150	4500	4568	4432

