



# BANNING GAS FLOW SENSOR BAFS4000B



**BANNING**

## DESCRIPTION

BAFS4000B mass gas flow sensor is made of micro-electro-mechanical system (MEMS) flow sensor chip, which is suitable for clean and relatively dry gas measurement of various uses, realizing the digitalization, intelligence and high security of the equipment, and has the role and improvement of traditional industry innovation. Wide range of flow measurement range to meet the flow measurement needs of different equipment in the industry, high sensitivity, high reliability, high stability and low cost performance characteristics can promote the industry to energy saving and intelligent direction development.

BAFS4000 series products are based on MEMS traffic sensing unit, high precision digital processing and calibration circuit (MCU) composition, integrated high-resolution Delta- A/D converter and have internal calibration function Qun circuit and MCU processor together to ensure that the sensor signal real-time effective acquisition, obtain accurate traffic signal, And the corresponding compensation algorithm is processed internally, so there is no need to do any external calibration compensation, can ensure high precision flow output; Friendly digital output communication line, users can get corresponding data and information very easily; Product application range is very broad.

Parameter	BAFS4000B
Test conditions	VIN=12 ± 0.01VDC , Ta=25 ° C
Relative humidity	40%<relative humidity<60%
Temperature range	-25 ~ 85
Storage temperature	-40 ~ 90
Humidity	0~100%RH
Impact resistant	100g
Supply voltage (5)	8~18VDC
Supply current	20~30mA
Analog voltage output (3)	1~5VDC
Zero voltage	0.95~1.05VDC
Zero drift	0.2%F.S
Precision	1.5%F.S
Response time	20ms
Resolution (4)	0.1%F.S
Load	100K
Whole material	Silicon carbide, epoxy resin, polyphenylene sulfide, FR4, silicon as seal

## CHARACTERISTICS

- The traffic ranges from 0SLPM to 300SLPM
- High accuracy (1.5% F.S accuracy)
- Linear output and temperature compensation
- Maintain long term stability with minimum zero drift
- Forward and reverse gas flow measurement
- Solid sensing core (no surface cavities or fragile film), resistant to clogging and pressure impact
- Analog output (1-5 V) (digital I<sup>2</sup>C communication output is available)
- Fast response time (20ms response time)
- The sensor is resistant to condensation

	Flow range (1)	Unit (2)	Maximum flow rate (m/s)
BAFS4003BV	-12~12	SLM	0.527
BAFS4004BV	-20~20	SLM	0.877
BAFS4005BV	-35~35	SLM	1.535
BAFS4100BV	-50~50	SLM	2.193
BAFS4101BV	-100~100	SLM	4.387
BAFS4102BV	-150~150	SLM	6.58
BAFS4103BV	-200~200	SLM	8.773
BAFS4104BV	-300~300	SLM	13.16

**NOTE :** • 1. The range between 10SLM and 300SLM can be customized

- 2. SLM: standard litres per minute. Standard conditions: 0 and 1 atmosphere
- 3. 0~3V output is also available
- 4. including temperature drift and linear error
- 5. 5V power supply voltage can be selected

## APPLICATION

- ventilator / respirator
- Oxygen generator
- Gas mask and respirator
- Spray
- Continuous positive airway pressure (CPAP) devices
- Anesthesia delivery
- Leak detection
- The spectrometer
- Mass flow controller
- Environmental climate control
- Fuel cell control

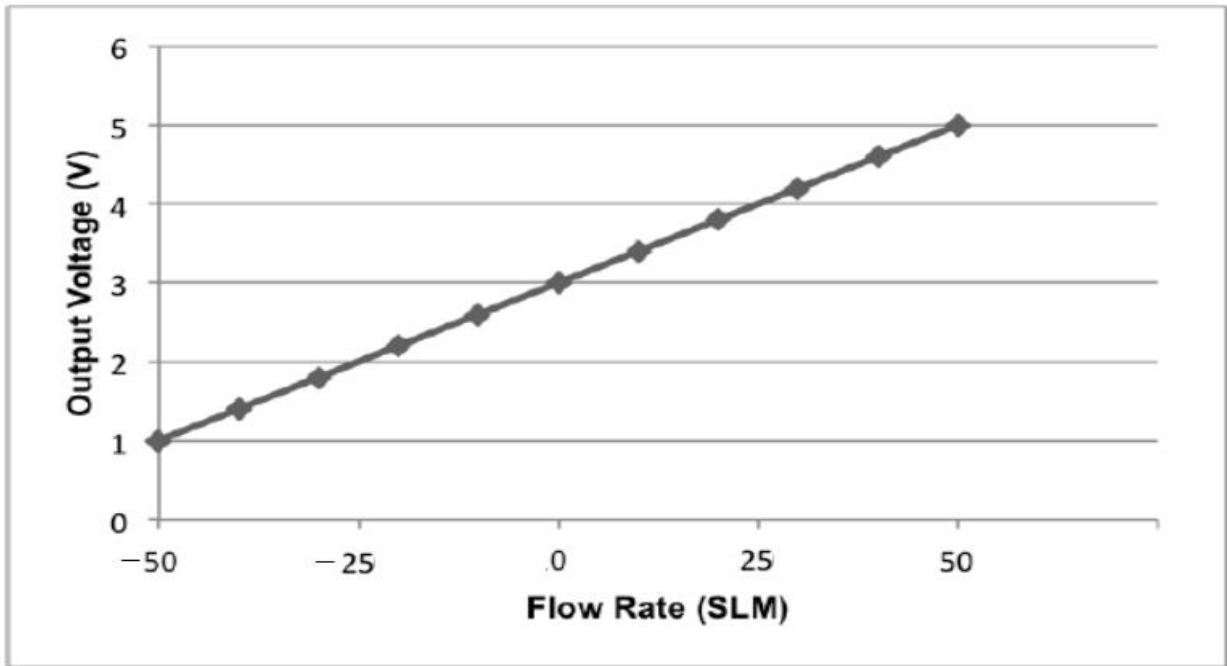
## LINEAR OUTPUT

Flow rate = [ (VOUT-3 V ) / 2 V ] x full-scale flow rate

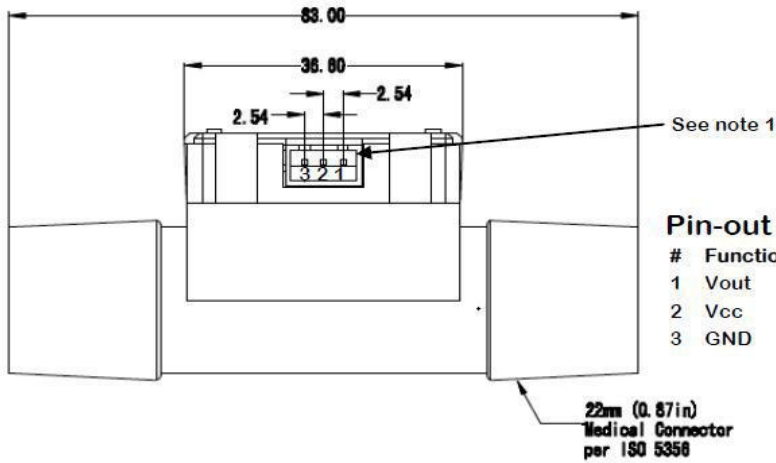
For example: BAFS4100B has a full scale flow of 50 SLM. When the output voltage is 4V, the instantaneous flow is:

$$[ ( 4V-3V ) / 2V \times 50 \text{ SLM} ] = 25 \text{ SLM}$$





## DIMENSIONS



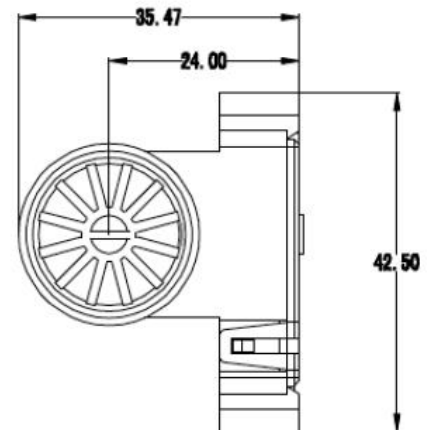
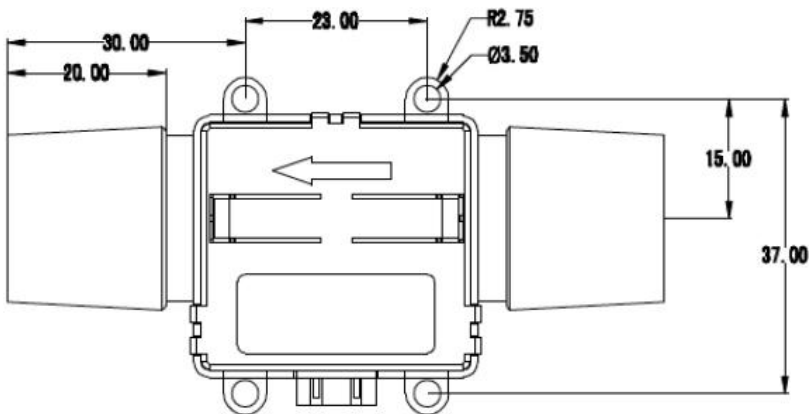
**Pin-out**

#	Function	Wire Color
1	Vout	Yellow
2	Vcc	Red
3	GND	Grey



Mating Connector

22mm (0.87in)  
Medical Connector  
per ISO 5358



NOTE : • 1. According to customer requirements can be matched with a connector connection line

## SAFETY AND MAINTENANCE

When the sensor is used for the measurement of explosive gas and harmful gas, it must strictly follow the requirements and restrictions of the product manual. Strong corrosive gas and chloride gas may affect the correct measurement of the sensor and may cause damage to the sensor.

The product has been sealed and tested for leakage before leaving the factory. When used under high pressure, it must comply with the pressure limit on the product manual, otherwise it may lead to leakage and safety problems.

## INSPECTION

When unpacking, check the integrity of the external packaging, proofread the quantity and specifications of the items in the box according to the packing list, and check their integrity. The random documents include: packing and unpacking and inspection safety and maintenance sheet, certificate of conformity, verification certificate, instruction manual, product quality tracking card.

## NOTICE

- The product is best used in the environment of clean gas; not suitable for the environment with a lot of dust, oil pollution and multiphase flow; for the environment with a lot of water vapor, please contact the manufacturer in advance.
- Products are suitable for gas measurement, monitoring and control in automotive, industrial, commercial, equipment and other industries. Use in other unsuitable environments should be strictly controlled.
- When using or applying this product, you should strictly follow the relevant operating specifications and safety precautions and regulations for operators.

## PRECAUTIONS

- The product can only work properly in the usage environment defined in this manual.
- When installing, pay attention to the gas flow direction sign, and the connection and leak detection should be carried out according to the corresponding regulations.
- During the use of the product, online installation of pipelines, cleaning of pipelines or other operations that may introduce a large amount of impurities may cause damage to the product.
- If there is water in the medium, or immersed in water, the sensitive characteristics of the sensor may be degraded or damaged.
- The reverse connection of the positive and negative poles of the power supply will cause the internal circuit of the sensor to burn out, thus affecting the use.

# DISCLAIMER

## Warning

### LIFE OR PROPERTY RISK

- Please ensure that this product has been designed as part of whole system and already considered related risks, make sure the product has the correct ratings and is designed based on the entire system. It must not be used when applications related to serious life or property damage risks.

Failure to follow this instruction can result in death or serious injury.

## Warning

### PERSONAL INJURY

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to follow this instruction can result in death or serious injury.

## Warning

### MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to follow this instruction can result in death or serious injury.

## Warranty/Remedy

Banning warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Banning's standard product warranty applies unless agreed to otherwise by Banning in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Banning during the period of coverage, Banning will repair or replace, at its option, without charge those items that Banning, in its sole discretion, finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Banning be liable for consequential special, or indirect damages.

While Banning may provide application assistance personally, through our literature and the Banning web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Banning assumes no responsibility for its use.

## SALES & SERVICE

Banning serves its clients through a worldwide network of sales offices, agents and distributors. For application assistance specifications, prices or names with the nearest authorized dealer, please contact your sales specialist or contact us directly:

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