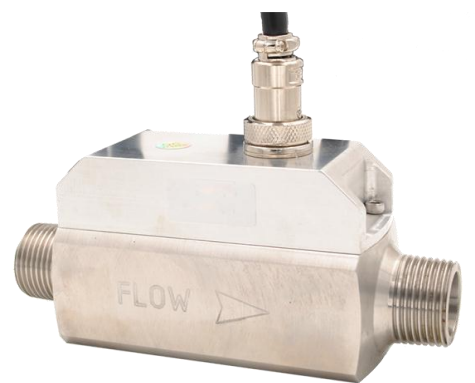




BANNING
GAS FLOW SENSOR
BAFS5019A



BANNING

DESCRIPTION

BAFS5019A mass gas flow sensor is made of micro-electro-mechanical system (MEMS) flow sensor chip, suitable for a variety of uses of clean, relatively dry gas flow measurement and process control, the unique packaging technology makes the product meet different range of flow measurement, to ensure high sensitivity, high reliability, high stability and low cost.

BAFS5019A 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.

CHARACTERISTICS

- High accuracy (1.5% F.S accuracy)
- Linear output and no temperature compensation
- Maintain long term stability with minimum zero drift
- Fast response time (20ms response time)
- Wide flow rate range 0~60m/s, impact resistance 100g
- Solid sensing core (no surface cavities or fragile film), resistant to clogging and pressure impact
- Analog output (1-5 V) (digital RS485 communication output can be provided)
- Can be adapted to the relative humidity gas measurement
- The sensor is resistant to condensation

PREFORMANCE

Parameter	BAFS5019A
Flow range	0~300/500/600/800/1000 slpm (customizable)
Power supply	8~24VDC , 50mA
Precision	± 1.5%FS
Response time	20ms
Maximum pressure	0.8MPa (customizable)
Communication methods	I ² C/RS485(MODBUS)
Output way	Analog output 1~5VDC
Working temperature	-25 ~85
Storage temperature	-40 ~90
Humidity	0~100%RH
Medium temperature	-10 ~65
Environment temperature	-25 ~85
Interface	G3/4 (customizable)
Protection grade	IP40
Calibration mode	Air, 0 , 101.325kPa
Material	Stainless steel (Aluminum alloy optional)

APPLICATION

- Industrial
- Medical
- Oil
- Food processing
- Fuel gas
- Chemical
- Smelting
- Mechanical and electrical equipment

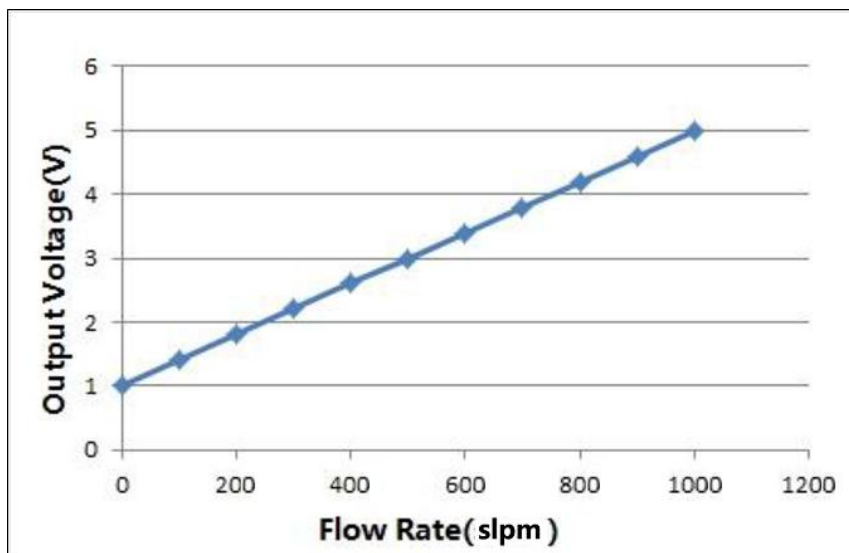
LINEAR OUTPUT

Flow rate = $[(V_{OUT}-1 V) / 4 V] \times \text{full-scale flow rate}$

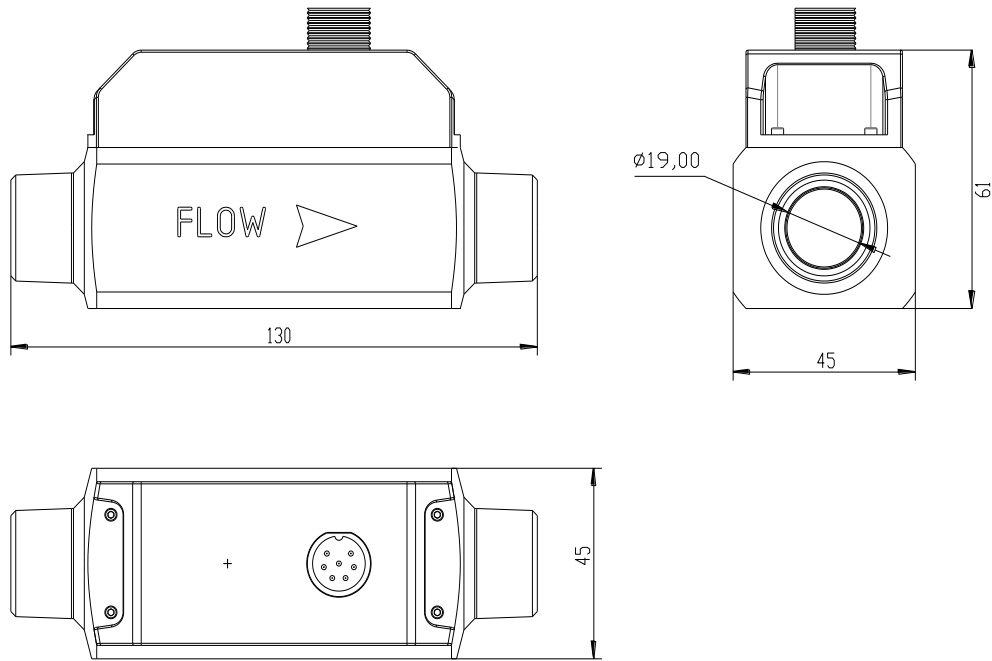
For example : BAFS5019A has 1000 slpm, a full scale traffic.

When the output voltage is 2.5V read, the instantaneous flow is:

$$[(2.5V-1V) / 4V \times 1000 \text{ slpm}] = 375 \text{ slpm}$$



DIMENSIONS



COMMUNICATION

1. RS485 communication

The communication mode of the flowmeter is RS485, and there are two protocol modes: (the factory default is mode B)

- A. The factory calibration communication protocol is single machine communication protocol;
- B. Modbus protocol, multi-machine communication protocol;

Other Settings are:

- Baud rate: 9600(Protocol A) / 9600(protocol B);
- Data bit: 8;
- Stop bit: 1;
- Check bit/flow control: none.

2. I²C communication

Please contact the manufacturer for detailed communication protocol.

OUTPUT LEAD DEFINITION

Connect the cable between the flowmeter and the user interface as follows:

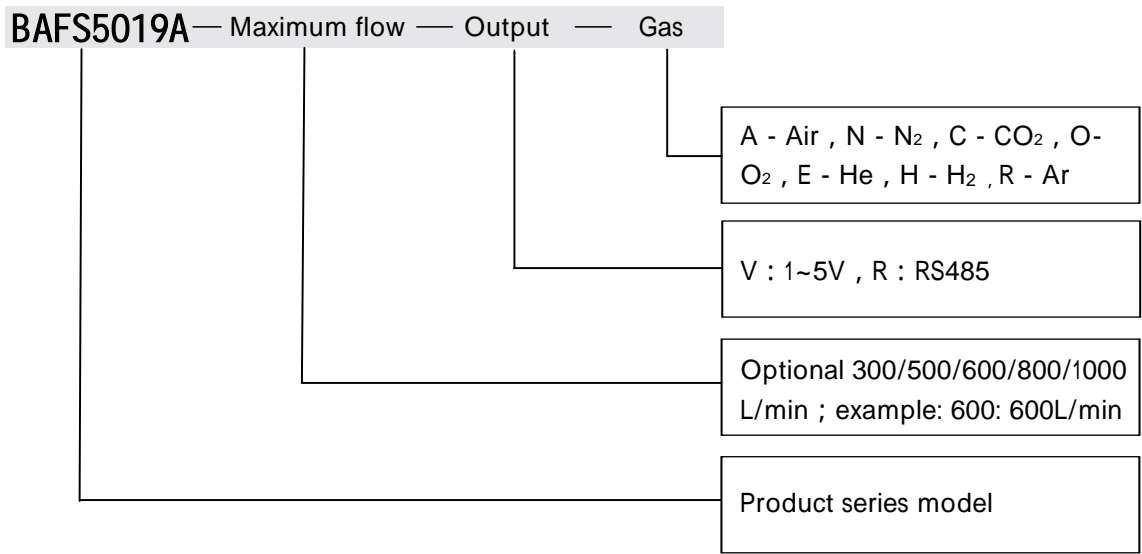
- Red: V +
- Black: V -
- Green: SCL (I²C)
- Blue: SDA (I²C)
- Yellow: Vout (Analog voltage output)

NOTE : Pin definition, RS485 communication (A and B); The power supply is the external power supply input (8~24VDC);

Yellow is the analog voltage output (1~5 VDC); The power supply is negative for public ground (GND).

Color Indicates the color of the cable.

PRODUCT SELECTION



- Note:**
- The default unit of maximum flow and minimum flow is L/min, which is the flow rate under the standard state (101.325kPa 20 °C);
 - Since there is a gas coefficient factor between different gases, it is necessary to inform the technical personnel of the manufacturer in advance to check the flow rate and the corresponding product model if there is a large coefficient relationship between the gases and the air.

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.

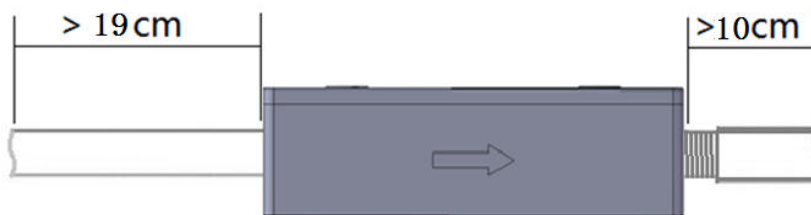
The product has been sealed and tested for leakage before leaving the factory. When used under high pressure, it must comply with the pressure limit on the product manual, otherwise it may lead to leakage and safety problems.

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.

INSTALLATION

- Install the sensor on the pipeline to ensure that the front straight pipe segment is larger than 19cm and the back straight pipe segment is larger than 10cm. Ensure that the straight pipe segment and the sensor are concentrically installed, and the sensor and the straight pipe segment are fixed reliably, as shown in the figure below:



- Note that the airflow direction during installation is consistent with the airflow direction indicated by the sensor. After the sensor lead wire is correctly connected according to the definition, the power is switched on and the work begins.

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.

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.

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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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