Micro Flow Sensor

（Model：F1031）

Manual

Version： 2.4

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Zhengzhou Winsen Electronics Technology Co., Ltd

Statement

Thanks for purchasing our product. In order to let customers use it better and reduce the faults caused by misuse, please read the manual carefully and operate it correctly in accordance with the instructions. If users disobey the terms or remove, disassemble, change the components inside of the sensor, we shall not be responsible for the loss.

The specific such as color, appearance, sizes &etc, please in kind prevail.

We are devoting ourselves to products development and technical innovation, so we reserve the right to improve the products without notice. Please confirm it is the valid version before using this manual. At the same time, users' comments on optimized using way are welcome.

Please keep the manual properly, in order to get help if you have questions during the usage in the future.

Zhengzhou Winsen Electronics Technology CO., LTD

F1031 Micro Flow Sensor

Profile

F1031 micro flow sensor adopts thermodynamic principle to detect the gas flow, and it has high accuracy and good repeatability. The built-in temperature sensor makes the product has the function of professional temperature compensation calibration. At the same time, the output is linear analog voltage which is convenient to use.

Features

Latest MEMS Sensor chip technology
High accuracy, quick response, good repeatability
Detection micro flow accurately
It is calibrated completely and temperature compensated

Main Applications

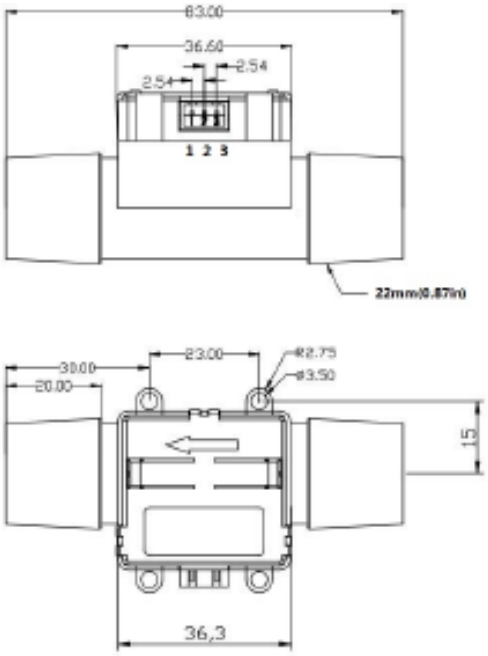
Industrial process control
Air and environment protection
Portable detector

Technical Parameters

Stable1.Technical Parameters

Model	F1031			
Measuring Range①	50、100、150、200、300 SLM②			
	Min	Typical	Max	Unit
Full Scale Output	4.90	5.00	5.10	V
Zero Output	0.96	1.00	1.04	V
Output Impedance	-	200	-	Ω
Working Voltage	7.0	10.0	14.0	V
Working Current	15	25	30	mA
Accuracy	-	±1.5	±2.5	%F.S
Repeatability	-	±0.3	±0.5	%F.S
Annual Drift	-	±0.1	±0.5	%F.S
Pressure range	-	-	100	kPa
Response Time③	55	50	55	ms
Working Temp.④	-25		65	℃
Storage Temp.	-40		90	℃

Fig1.Sensor Structure



Stable 2.Pins definition

Pin	Function
1(black or gray)	GND
2(red)	VCC
3(yellow)	OUT

Note:

①The measuring range within 50-300SLM is available and regular measuring ranges such as 50、100、150、200、300SLM.Customized fee will be charged for other ranges.

②SLM means standard liter per minute. Standard-state: gas temperature is 20℃ and pressure is 101.325 kPa.

③Customization of response time between 10ms and 1000ms. This response time refers to the electronic response time by the flow sensor for any mass flow change from 10% to 90%. which may be affected by the aerodynamic interface.

④The temperature compensation is for the temperature range of 0-50℃ and the compensation performance can't be ensured beyond the temperature range.

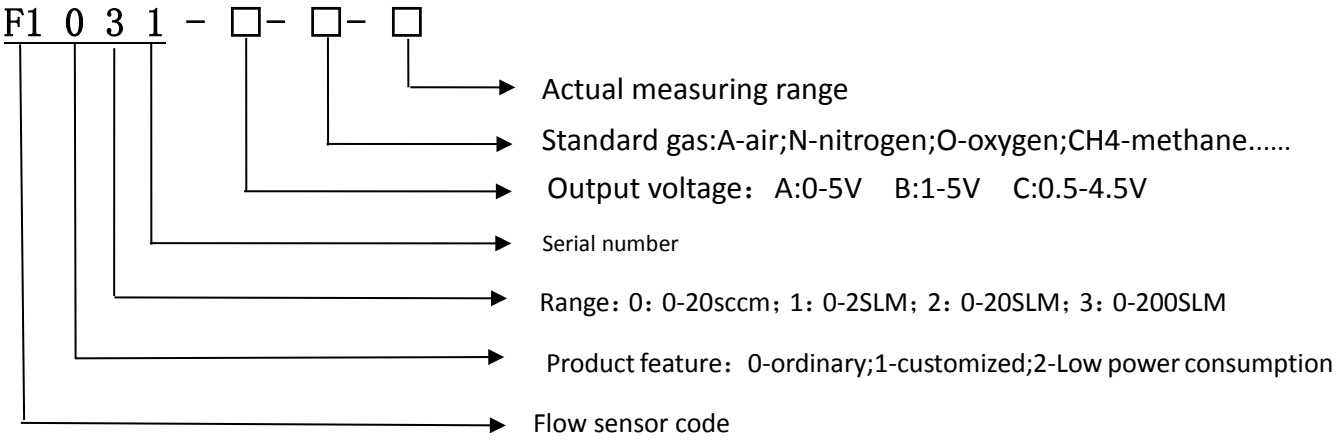
Calculation for Airflow

Actual flow=full scale * (sensor actual output voltage-zero output voltage) **/** (full scale output voltage-zero output voltage)

For example: the sensor full scale is 200 SLM, the sensor zero output voltage is 0.5V and full scale output voltage is 4.5V, and the actual output is 3.5V.

Then the actual flow=200 SLM * (3.5V – 0.5V)/(4.5V- 0.5V) = 150SLM

Naming Rule



Cautions

1. Prohibit to use it in strong corrosive gas, toxic gas, explosive gas environment.
2. If measured gas medium contains dirt, the sensor's lifespan will be shorten. We suggest users equip the sensor flow inlet with 5 micrometer precise filter.
3. The sensitivity of the product will reduce or be damaged if it contacts to water.
4. The wrong connecting of power supply will damage the internal circuit.