



Micro Flow Sensor

(Model: F1013)

Manual

Version: 2.4

Valid From: 2021.05.11

Zhengzhou Winsen Electronics Technology Co., Ltd

Statement

This manual copyright belongs to Zhengzhou Winsen Electronics Technology Co., LTD. Without the written permission, any part of this manual shall not be copied, translated, stored in database or retrieval system, also can't spread through electronic, copying, record ways.

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.

F1013 Micro Flow Sensor

Profile

F1013 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

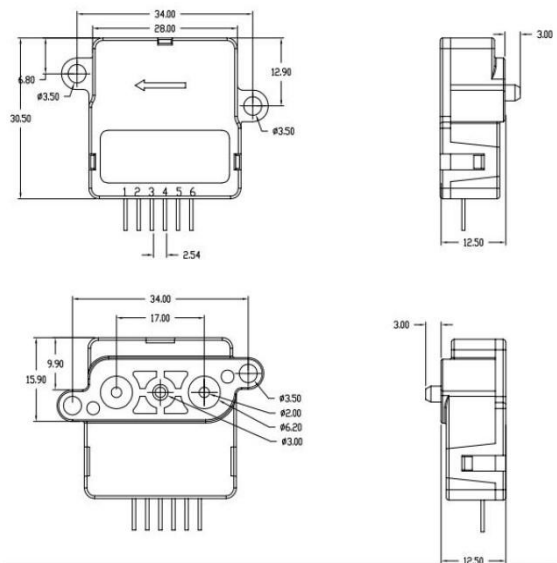
- Latest MEMS Sensor chip technology
- High accuracy, quick response, good repeatability
- Detection micro flow accurately
- It is calibrated completely and temperature compensated

Main Applications

- Industrial process control
- Air and environment protection
- Portable detector

Technical Parameters Stable1.s

Model	F1013			
Measuring Range ^①	50、100、200、500、1000、2000sccm ^②			
	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 ^③	-	±0.1	±0.5	%F.S
Pressure range ^④	-	-	200	kPa
Response Time	45	50	55	ms
Working Temp. ^⑤	-25	-	65	°C
Storage Temp.	-40	-	90	°C



Stable 2. Pins definition

Pin	Function
1	Null
2	Null
3	GND
4	VCC
5	OUT
6	Null

Note:

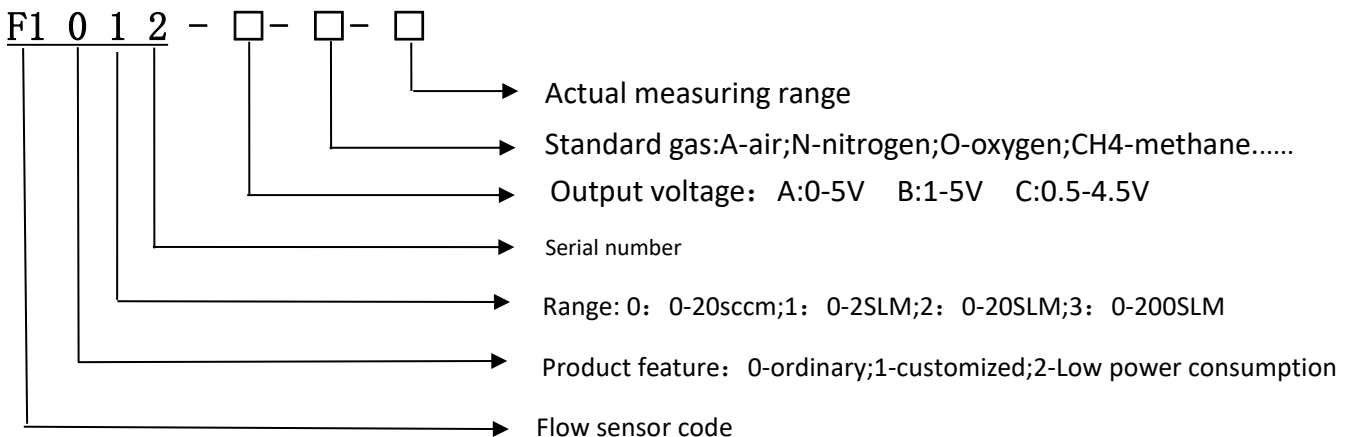
- ① The measuring range within 50-2000sccm is available and regular measuring ranges such as 50、100、200、500、1000、2000sccm.
- ② sccm means standard-state cubic centimeter per minute. Standard-state: gas temperature is 0°C and pressure is 101.325 kPa.
- ③ The testing environment is room temperature and clear air.
- ④ The temperature compensation is for the tem. range of 0-50°C 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 1000 sccm, the sensor zero output voltage is 1V and full scale output voltage is 5V, and the actual output is 2.5V.

Then, the actual flow=1000sccm * (2.5V - 1V)/(5V- 1V) = 375sccm

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.