



# Micro Flow Sensor

(Model: F1012)

# Manual

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Zhengzhou Winsen Electronics Technology Co., Ltd

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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.

## F1012 Micro Flow Sensor

### Profile

F1012 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	F1012			
Measuring Range <sup>①</sup>	20, 30, 50, 100, 200, 500, 1000, 1200, 2000sccm <sup>②</sup>			
	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	-	$\Omega$
Working Voltage	7.0	10.0	14.0	V
Working Current	15	25	30	mA
Accuracy	-	$\pm 1.5$	$\pm 2.5$	%F.S
Repeatability	-	$\pm 0.3$	$\pm 0.5$	%F.S
Annual Drift <sup>③</sup>	-	$\pm 0.1$	$\pm 0.5$	%F.S
Pressure Loss			1200	Pa@1000sccm
Pressure range <sup>④</sup>	-	-	200	kPa
Response Time	5	10	15	ms
Working Temp. <sup>⑤</sup>	-25	-	65	$^{\circ}\text{C}$
Storage Temp.	-40	-	90	$^{\circ}\text{C}$

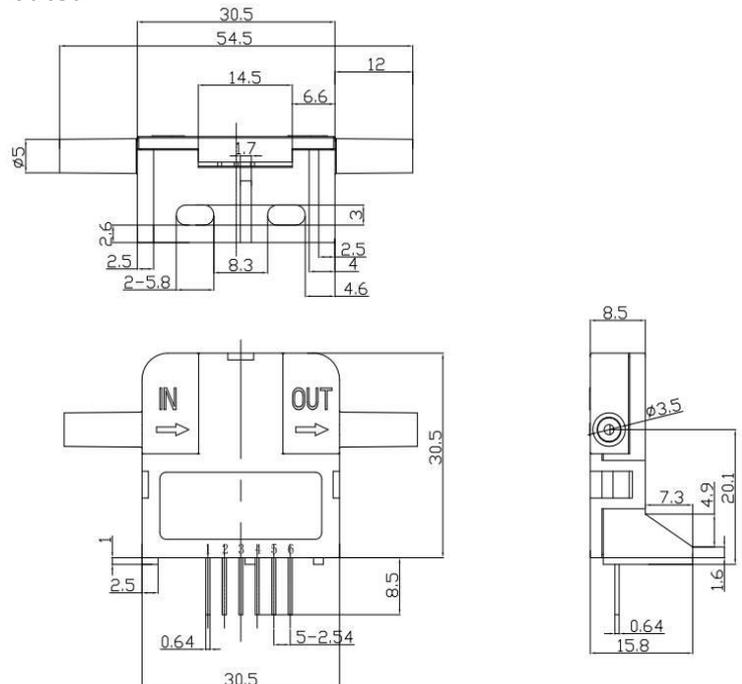


Fig1.Sensor Structure

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

Stable 2.Pins definition

**Note:**

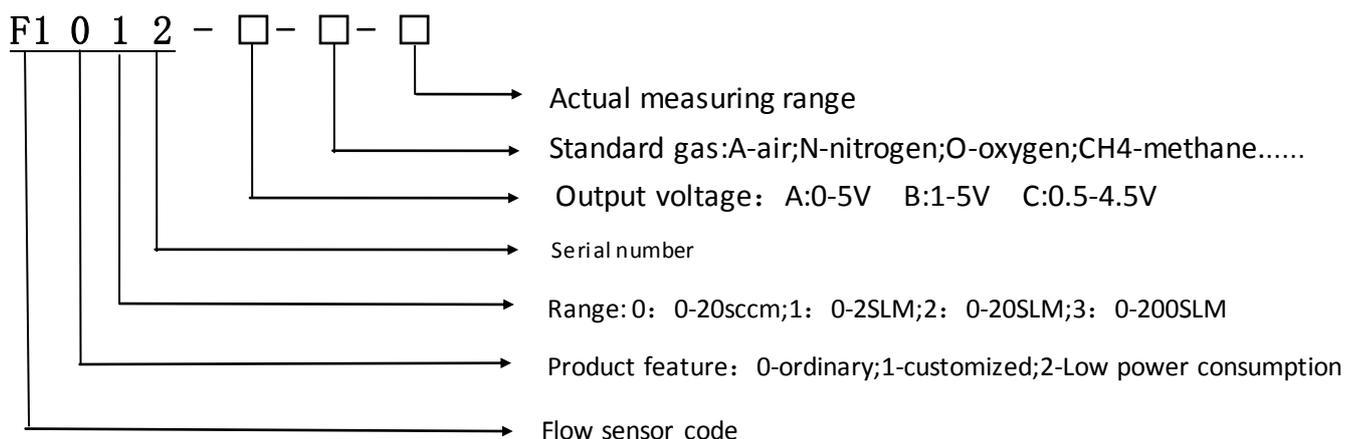
- ① The measuring range within 20-2000sccm is available and regular measuring ranges such as 20, 30, 50, 100, 200, 500, 1000, 1200, 2000sccm. Customized fee will be charged for other ranges.
- ② sccm means standard-state cubic centimeter per minute. Standard-state: gas temperature is 0°C and pressure is 101.325 kPa.
- ③ The testing environment is room temperature and clear air.
- ④ The pressure range of 0.8 MPa can be customized.
- ⑤ 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.

So, 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.