Micro Flow Sensor

（Model：F1012）

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.

<div align="right">

Zhengzhou Winsen Electronics Technology CO., LTD.

</div>

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[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	℃
Storage Temp.	-40	-	90	℃
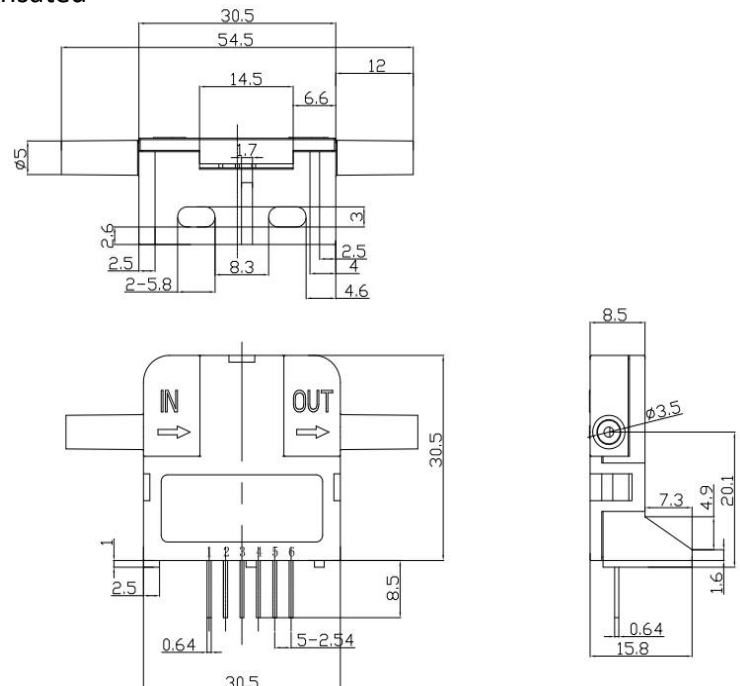
Fig1.Sensor Structure

Stable 2.Pins definition

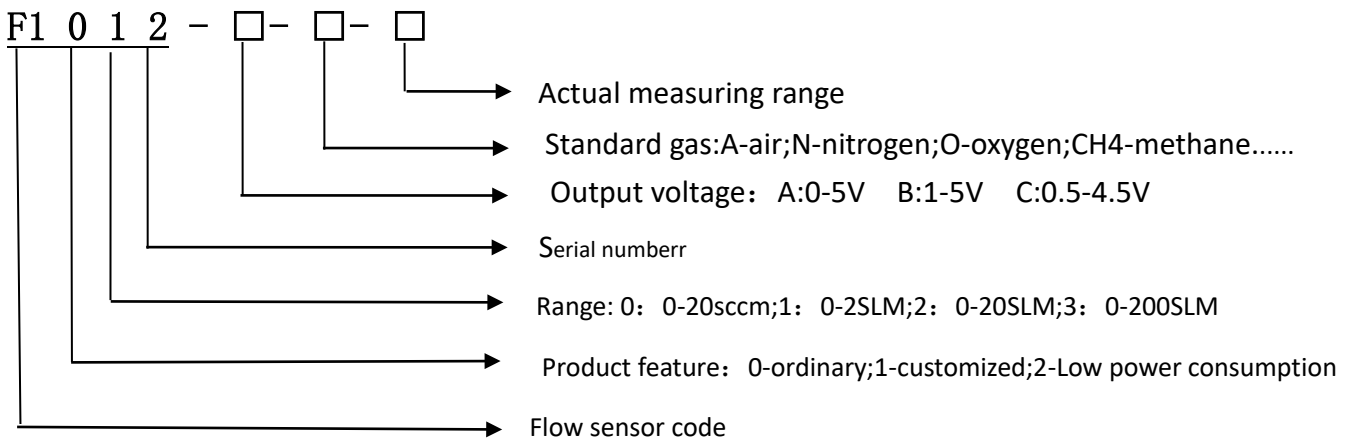| Pin	Function
1	Null
2	OUT
3	VCC
4	GND
5	Null
6	Null

Note:

①The measuring range within 50-2000sccm is available and regular measuring ranges such as 50、100、200、500、1000、2000sccm.

②SCCM means standard-state cubic centimeter per minute. Standard-state: gas temperature is 0℃ and pressure is 101.325 kPa.

③The testing environment is room temperature and clear air.

④The temperature compensation is for the tem. 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 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

F1 0 1 2 – □ – □ – □

Actual measuring range

Standard gas:A-air;N-nitrogen;O-oxygen;CH4-methane……

Output voltage：A:0-5V   B:1-5V   C:0.5-4.5V

Serial numberr

Range: 0：0-20sccm;1：0-2SLM;2：0-20SLM;3：0-200SLM

Product feature：0-ordinary;1-customized;2-Low power consumption

Flow sensor code

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.

Leading gas sensing solutions supplier in China!