

MICRO THERMAL GAS MASS FLOWMETER

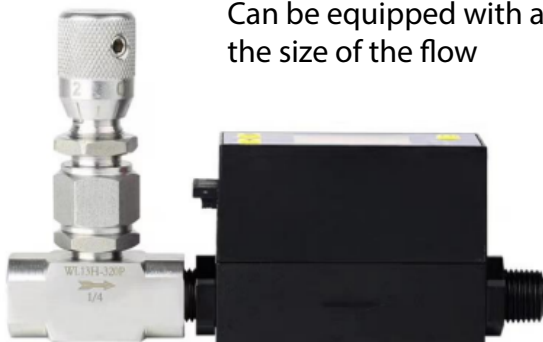
RANGE

DN8mm: 50ml/min~10L/min

DN10mm: 0.3L/min~230L/min



Can be equipped with a micro manual regulating valve to adjust the size of the flow



I Product introduction

Micro gas mass flow meters is specially designed for the measurement and process control of various types of small flow gases. This series of sensors are made with advanced micro-electro-mechanical system (MEMS) flow sensing chips, and are suitable for all types of clean gases. The Unique packaging technology makes it suitable for a wide range of pipe sizes, low cost, easy installation, no temperature and pressure compensation, and can replace traditional volumetric or differential pressure flow meters.

II Product features

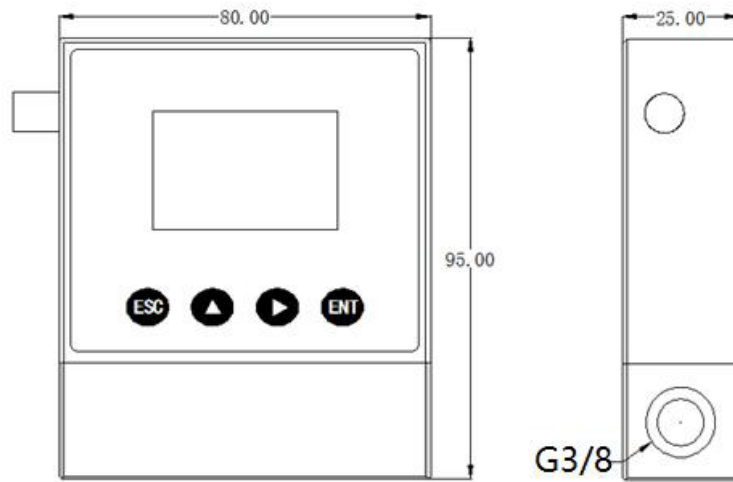
- Using MEMS flow sensor chip, the sensor has the characteristics of high precision, high sensitivity and strong anti-interference.
- This product has display screen and setting buttons, which is easy to operate and read directly.(optional)
- The zero point stability of the sensor is greatly improved compared with the ordinary thermal flow meters.
- Full range high stability.
- Full range precision and excellent repeatability.
- Combined with structural optimization, the flow meter can greatly reduce pressure loss and energy consumption compared with traditional mechanical instruments.
- LCD display instantaneous flow and cumulative flow, clear and intuitive, easy to read.
- 4~20mA standard signal output and second impulse output to choose.

III Technical parameters

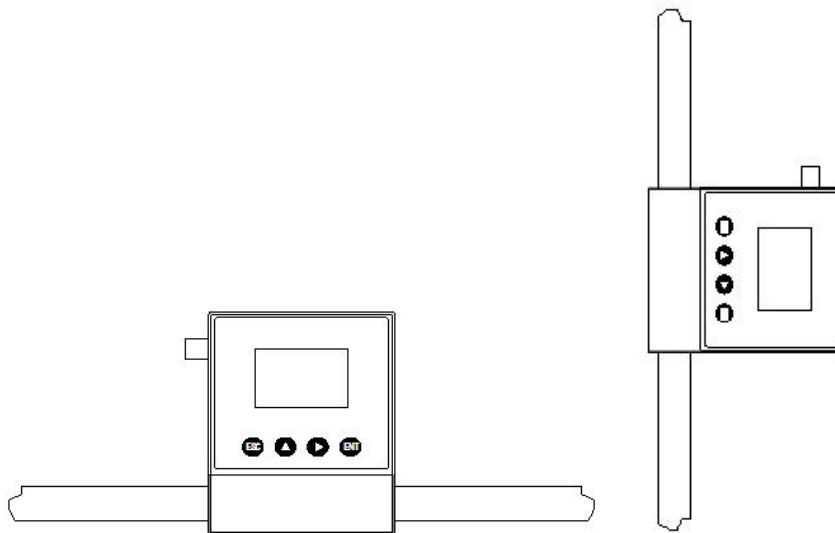
precision	+ 1.5 + 0.2 (FS)	Medium temperature	- 10 ~ 55
Response time (MS)	50- 1000.	Humidity	<95%RH(no frost, no icing)
Maximum working pressure (Mpa)	1.0	Connection	G3/8
Working power	15v- 24v 100mA	The overall power consumption	< 2.4 W.
Output model	4- 20mA, pulse (optional)	Communication methods	RS485 (Modbus protocol)
Display	Instantaneous flow, cumulative flow	Calibration	Air (20°C, 101.325kPa)

Note: The above data were measured at 20°C, 101.32kPa, dry air

IV Mechanical dimensions (mm)

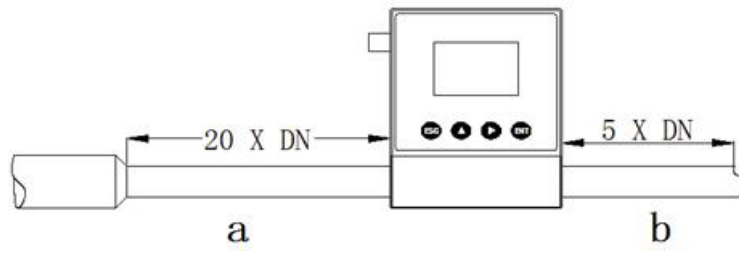


V installation

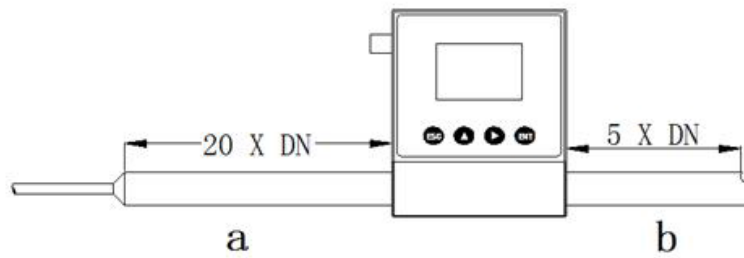


VI Installation Notes

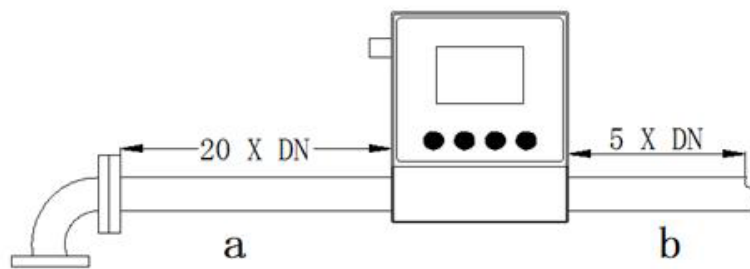
Reducing Coupling:



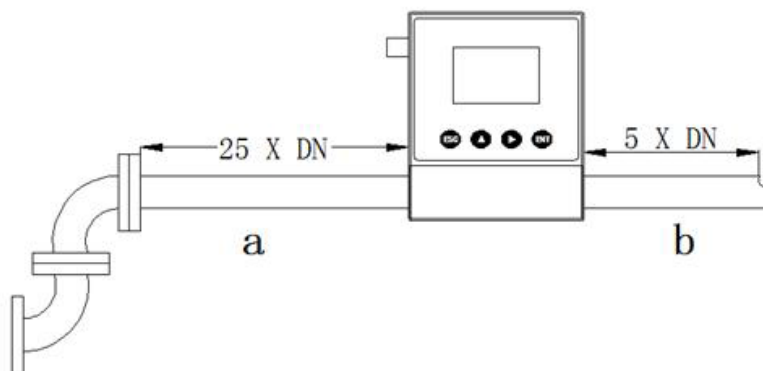
Expansion pipe:



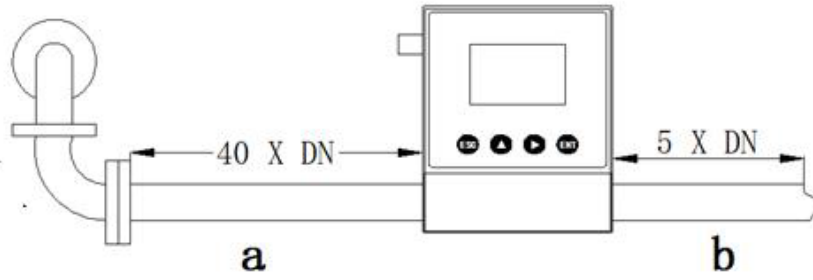
With a 90 degree joint or t-pipe:



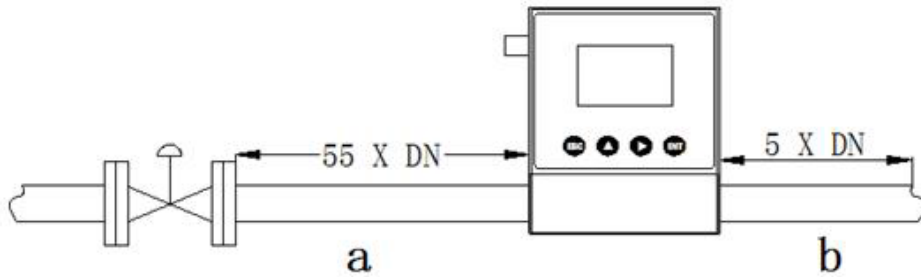
With two 90 degree joints:



With three 90 degree joints:



With control valve:

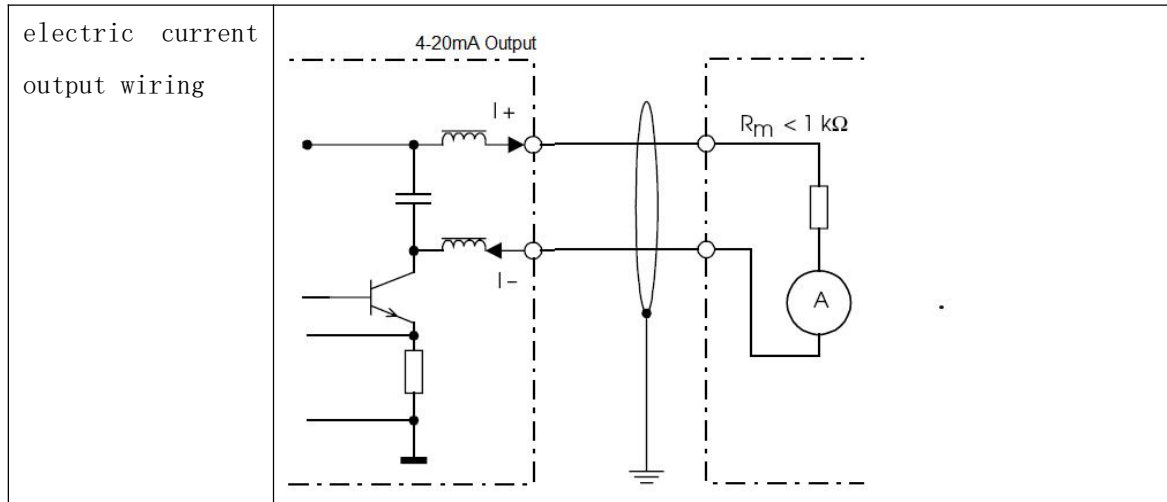


VII Wiring diagram

1) Description of wiring terminal:

logo	meaning
1 - pi nk	24 V-/ electric current I-
2 - bl ack	electric current (I) +
3 - bl ue	PE
4 - whi te	24V+
5 - br own	RS485 communication output A
6 - gr ay	RS485 communication output B

2) Wiring connection:



VIII Operation instructions:

Button Description

logo	meaning
ESC	Cancel or exit the interface
▶	The shift key
◀	Modify/page key
ENT	Confirm/Enter key

1) Menu description

a) Display the menu

Flow NL/m

0.00

0 NL

Display instantaneous flow and instantaneous flow rate unit
Cumulative flow and unit: Press ▶ to enter the detailed display window

V1.02 □ □ □ OK

F 00000030.2 NL/m

T 000000300. NL
2341

V 00000080.2 Nm/s
1.123v 5.23mA

All information display window
The first line: V1.02 is the software version number, the box is the status indicator, OK indicates that the sensor is normal. Err indicates

Table of conversion coefficients of gases with respect to air

At present, the laboratory cannot calibrate the mass flow rate according to the gas flow rate actually used by users. When the user uses, the direct output shows the actual mass flow rate or volume flow rate of the gas.

The conversion of different gases is carried out by conversion coefficient, the conversion coefficient of a single component gas can be found in the table. The following table:

	The gas body	Specific heat (CAL/g °C)	Density (g/L 0°C)	Conversion factor
00	Air Air	0.24	1.293	1.0000
01	Argon Ar	0.125	1.6605	1.4066
02	The arsenic hydride AsH ³	0.1168	3.478	0.6690
03	Boron tribromide BBr ₃	0.0647	11.18	0.3758
04	Boron trichloride BCl ₃	0.1217	5.227	0.4274
05	Boron trifluoride BF ₃	0.1779	3.025	0.4384
06	Borane B ² H ⁶	0.502	1.235	0.5050
07	Carbon tetrachloride CCl ₄	0.1297	6.86	0.3052
08	Carbon tetrafluoride CF ₄	0.1659	3.9636	0.4255
09	Methane CH ₄	0.5318	0.715	0.7147
10	Acetylene C ² H ²	0.4049	1.162	0.5775
11	Vinyl C ² H ⁴	0.3658	1.251	0.5944
12	Ethane C ² H ⁶	0.4241	1.342	0.4781
13	Propiolic C ³ H ⁴	0.3633	1.787	0.4185
14	Propylene C ³ H ⁶	0.3659	1.877	0.3956
15	Propane C ³ H ⁸	0.399	1.967	0.3459
16	Ding acetylene C ⁴ H ⁶	0.3515	2.413	0.3201
17	Butene C ⁴ H ⁸	0.3723	2.503	0.2923
18	Butane C ⁴ H ¹⁰	0.413	2.593	0.2535
19	Pentane C ⁵ H ¹²	0.3916	3.219	0.2157
20	Methanol CH ³ OH	0.3277	1.43	0.5805
21	Ethanol C ² H ⁶ O	0.3398	2.055	0.3897
22	Trichloroethane C ³ H ³ Cl ₃	0.1654	5.95	0.2763
23	Carbon monoxide	0.2488	1.25	0.9940

	CO			
24	Carbon dioxide CO ²	0.2017	1.964	0.7326
25	Cyanide gas C ² N ²	0.2608	2.322	0.4493
26	Chlorine Cl ²	0.1145	3.163.	0.8529
27	Deuterium gas D ²	1.7325	0.1798	0.9921
28	Fluorine F ²	0.197	1.695	0.9255
29	Germanium tetrachloride GeCl ⁴	0.1072	9.565	0.2654
30	Germane GeH ₄	0.1405	3.418	0.5656
31	Hydrogen, H. 2	3.4224	0.0899	1.0040
32	Hydrogen bromide gets	0.0861	3.61	0.9940
33	Hydrogen chloride HCl	0.1911	1.627	0.9940
34	HF HF	0.3482	0.893	0.9940
35	Hydrogen iodide HI	0.0545	5.707	0.9930
36	Hydrogen sulfide H ₂ S	0.2278	1.52	0.8390
37	Helium He	1.2418	0.1786	1.4066
38	Krypton Kr	0.0593	3.739	1.4066
39	Nitrogen N ₂	0.2486	1.25	0.9940
40	Neon Ne	0.2464	0.9	1.4066
41	Ammonia NH ₃	0.5005	0.76	0.7147
42	Nitric oxide NO	0.2378	1.339	0.9702
43	Nitrogen dioxide NO ₂	0.1923	2.052	0.7366
44	Nitrous oxide ₂ O	0.2098	1.964	0.7048
45	Oxygen O ₂	0.2196	1.427	0.9861
46	Phosphorus trichloride PCI ₃	0.1247	6.127	0.3559
47	Phosphorus alkanes PH ₃	0.261	1.517	0.6869
48	Phosphorous pentafluoride PF ₅	0.1611	5.62	0.3002
49	Phopoci triclosan ₃	0.1324	6.845	0.3002
50	Silicon tetrachloride SiCl ₄	0.127	7.5847	0.2823
51	Silicon tetrafluoride SiF ₄	0.1692	4.643	0.3817
52	The silane SiH ₄	0.3189	1.433	0.5954
53	Dichlorosilane SiH ₂ Cl ₂	0.1472	4.506	0.4095
54	Trichlorosilicon SiHCl ₃	0.1332	6.043	0.3380

55	Sulfur hexafluoride SF ₆	0.1588	6.516	0.2624
56	So ₂	0.1489	2.858	0.6829
57	Titanium tetrachloride TiCl ₄	0.1572	8.465	0.2048
58	Tungsten hexafluoride WF ₆	0.0956	13.29	0.2137
59	Xenon Xe	0.0379	5.858	1.4066



It can be equipped with a micro manual regulating valve to adjust the size of the flow. The regulating valve is made of 304 material and the working pressure can reach 5MPA.

Notice:

Working temperature: -20-55°C, PTFE sealing material is anti-corrosion type,

