Thermal Gas Mass Flowmeter

Thermal flow meter is an instrument which measures fluid flow by means of heat conduction The working principle is be adopted constant temperature differential method is adopted to measure gas mass flow accurately, featured by small volume, high degree of digitization, convenient installation and accurate measurement.

The flow sensor is made up of two platinum resistance temperature sensors. One sensor is measuring the fluid temperature, the other sensor is to maintain the constant temperature differential.

The primary reason Thermal flow meter are popular in industrial applications is the way they are designed and built. No moving parts, nearly straight through flow path, temperature or pressure don't need to do corrections and retain accuracy over a wide range of flow rate.

Feature

- No moving parts
- Advanced signal processing electronics
- Long-term reliability
- Explosion-proof converter, Multi-flow unit
- Insert rod dia : ø18 mm and ø12 mm optional
- High precision redinforced sensor
- Direct mass flow detection without temperature and pressure compensation

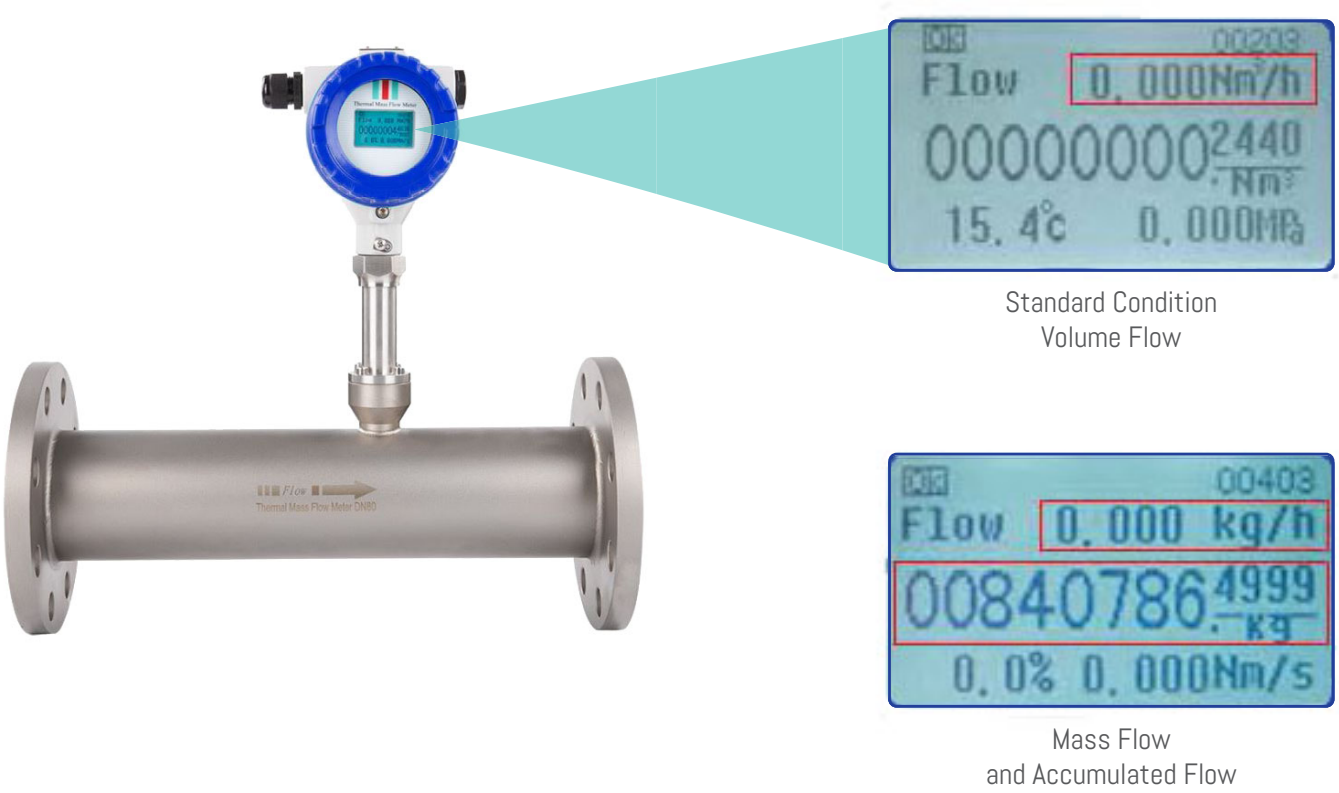
Wide Flow Range, High Sensitivity.

0.1 Nm/s → **100** Nm/s

The minimum flow velocity is 0.1 Nm/s. The thermal gas flowmeter is mainly used for measuring gas with low flow and the range could reach 1: 1000, which is better than gas flowmeter on market and low flow could be measured.

LCD HD Display

Multi flow unit switching. Ensure the accurate of measuring with multi-function setting.

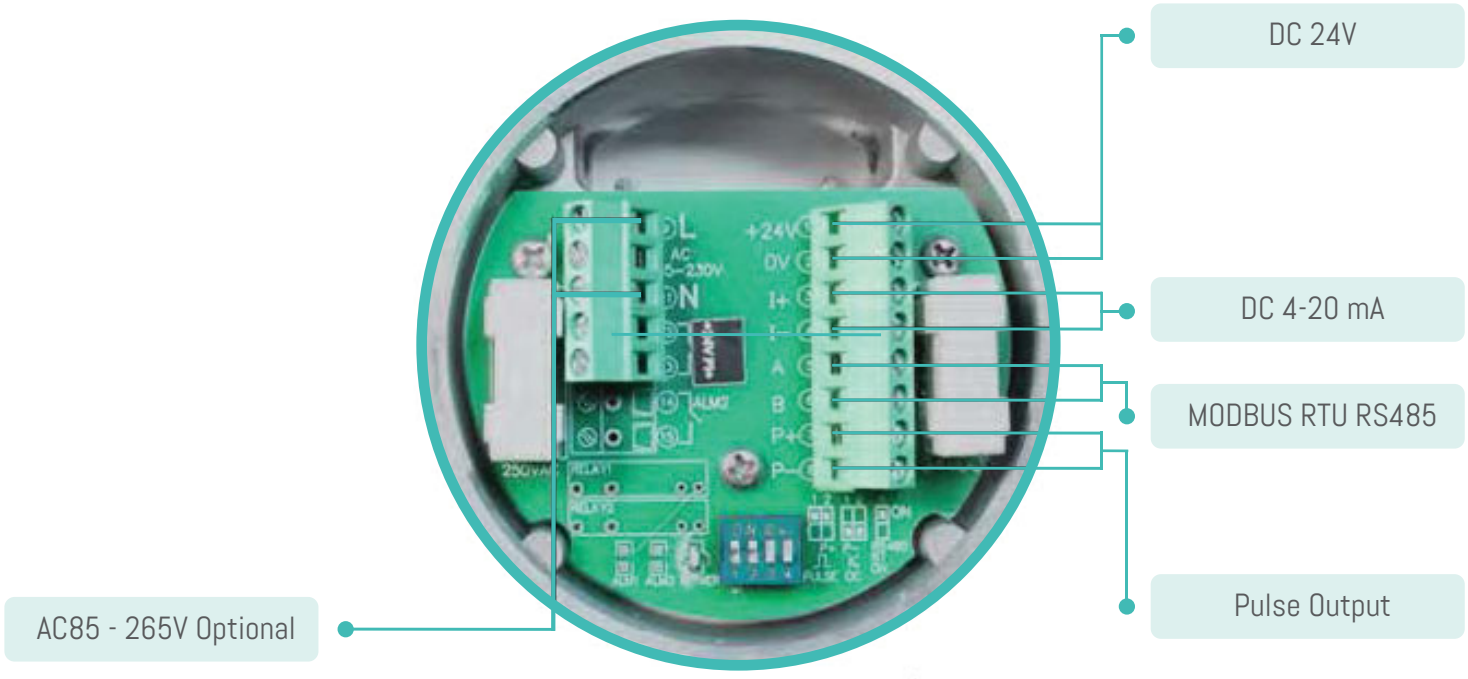


Standard Condition
Volume Flow

Mass Flow
and Accumulated Flow

Dual Power Supply

More options in the wiring process. With DC 4-20 mA four-wire output. which is more convenient for remote reception. Support MODBUS RTU RS485 protocal, coordinating the receiving system to collect more data and modify system.



Refined Shielded Rod& Anti-Shedding Design

Stainless Steel 304 Rod for corrosion resistant

Standard Rod Dia : Φ18

Optional Rod Dia : Φ12

Standard
Copper Material

Optional
PTFE

High Precision Reinforced Sensor

The sensor is adopted reinforcing design and the root is partially reinforced to make the probe stronger and more suitable for a variety of media.

Optional Sensor

Standard Sensor

Product Group

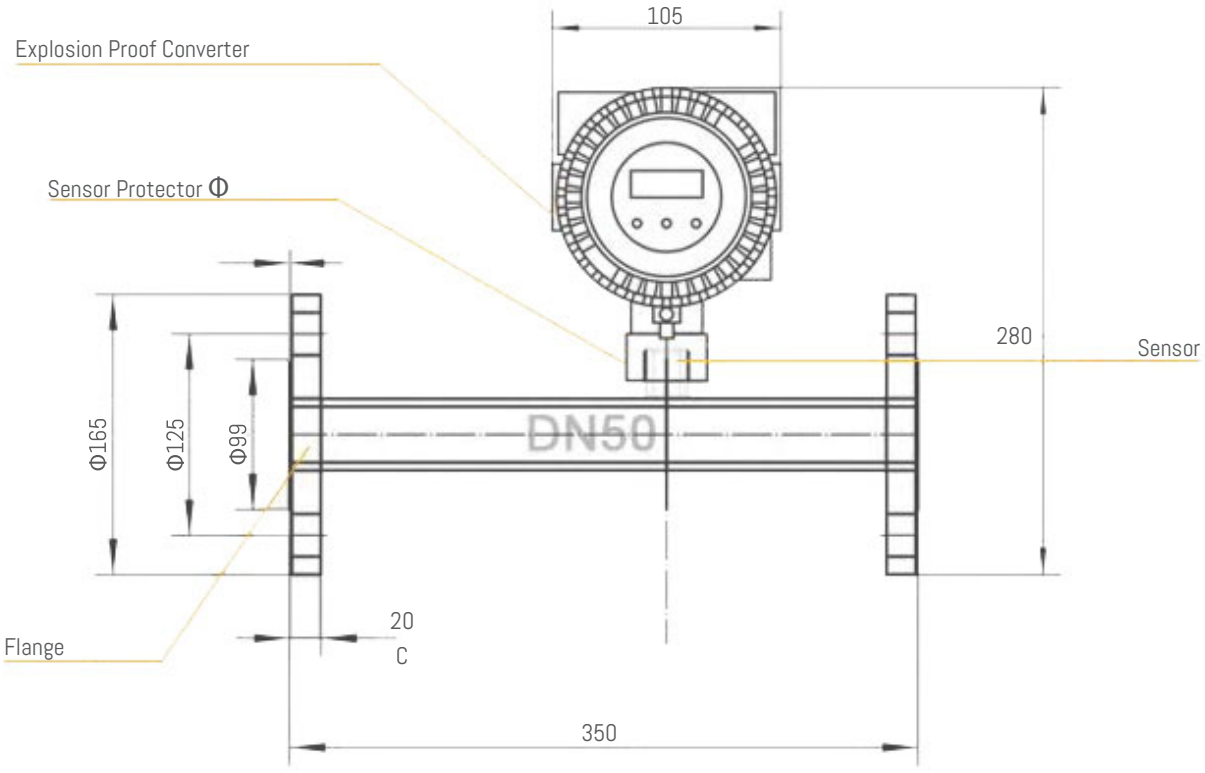
Flange Type

Insertion Type

Tri-Clamp Type

Thread Type

Dimension



Nominal Dia	Flange Outer Dia	Center Hole	Bolt Hole	Screw	Seating Surface		Flange Thickness	Installation Length
DN	D	k	n x L		d	f	C	L
15	95	65	4 x 14	M12	46	2	14	280
20	105	75	4 x 14	M12	56	2	16	280
25	115	85	4 x 14	M12	65	2	16	280
32	140	100	4 x 18	M16	76	2	18	350
40	150	110	4 x 18	M16	84	2	18	350
50	165	125	4 x 18	M16	99	2	20	350
65	185	145	4 x 18	M16	118	2	20	400
80	200	160	8 x 18	M16	132	2	20	400
100	220	180	8 x 18	M16	156	2	22	500

Technical Performance Parameters

Media	Various of Gas (Except acetylene)
Pipe Size	Insertion Type DN50-DN2000mm In-Line Type DN10 - DN2000mm Tri-Clamp & Thread Type DN15-100mm
Velocity	0.1 - 100 Nm/s
Accuracy	+/-1 to 2.5%
Working Temperature	Sensor -40 to 220 °C, Transmitter -20 to 45 °C
Working Pressure	Insertion Type ≤ 1.6 MPa Flange Type ≤ 4.0 MPa Special pressure please double check
Power Supply	Compact Type 24VDC or 220VAC, Power Consumption ≤ 18W Remote Type 220VAC, Power Consumption ≤ 19W
Response Time	1s
Output	4-20mA (Optoelectronic Isolation, Maximum Load 500 Ohm), Pulse RS485 (Optoelectronic Isolation) and HART
Alarm Output	1-2 line Relay, 10A/ 220V/AC or 5A/30V/DC
Sensor Type	Standard Insertion, Hot-tapped Insertion and Flanged
Construction	Compact and Remote
Pipe Material	Carbon Steel, Stainless Steel, Plastic etc.
Display	4 lines LCD Mass flow, Volume Flow in Standard Condition, Flow Totalizer, Date and Time, Working Time and Velocity, etc.
Protection	IP65

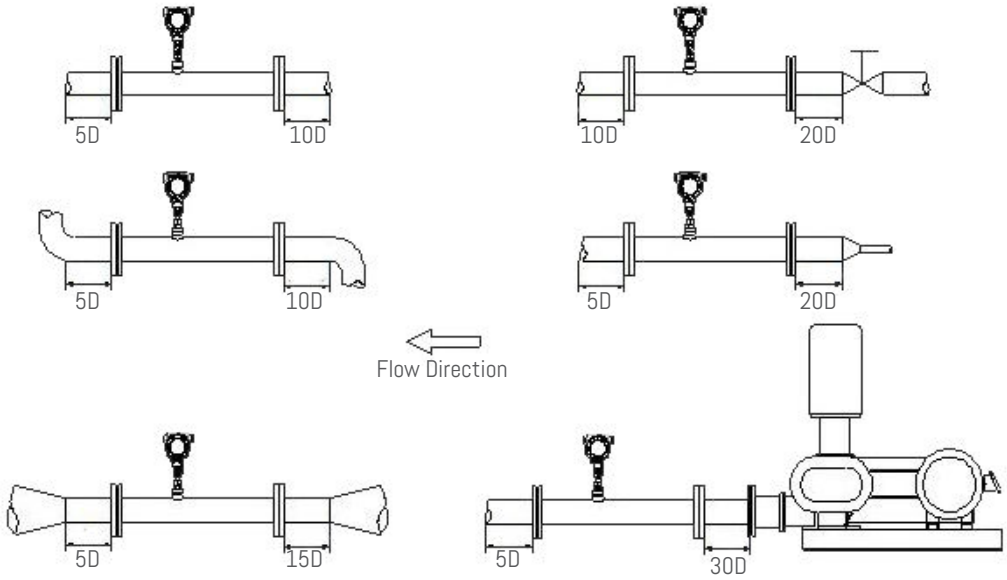
Flow Range

Caliber (mm)	Air	Nitrogen (N2)	Oxygen (02)	Hydrogen (H2)
15	65	65	32	10
25	175	175	89	28
32	290	290	144	45
40	450	450	226	70
50	700	700	352	110
65	1200	1200	600	185
80	1800	1800	900	280
100	2800	2800	1420	470
125	4400	4400	2210	700
150	6300	6300	3200	940
200	10000	10000	5650	1880
250	17000	17000	8830	2820
300	25000	25000	12720	4060
350	45000	45000	22608	5600
400	70000	70000	35325	7200
450	100000	100000	50638	9200
500	135000	135000	69240	11280
600	180000	180000	90432	16300
700	220000	220000	114500	22100
800	280000	280000	141300	29000
900	400000	400000	203480	36500
1000	600000	600000	318000	45000
2000	700000	700000	565200	18500

Nominal condition flow is the flow rate at temperature 20°C and pressure 101.325 Kpa.

Installation Method

When installing the Thermal Mass Flowmeter, keep away from elbows, obstacles, reducer and valves to ensure a stable flow field. It is required to have a long upper straight pipe. The front straight pipe length is greater than 10D, and rear straight pipe length is greater than 5D.



When the site could not meet the requirements of straight pipe section, the gas rectifier can be connected in series to greatly reduce the requirement for straight pipe section.

Model Select

TMM	XXX	X	X	X	X	X	X
Caliber	DN15 - DN4000	XXX						
Structure	Compact	C						
	Remote	R						
Sensor Type	Insertion		I					
	Flange		F					
	Clamp		C					
	Thread		S					
Material	SS304			304				
	SS316			316				
Pressure	1.6 MPa				1.6			
	2.5 MPa				2.5			
	4.0 MPa				4.0			
Temperature	- 40 to 200 °C					T1		
	- 40 to 450 °C					T2		
Power Supply	AC85 - 250V						AC	
	DC24 - 36V						DC	
Signal Output	4-20 mA + Pulse + RS485							RS
	4-20 mA + Pulse + HART							HT