

Thermal Mass Flowmeter

StaMass TMF200 - Insertion

Introduction

The thermal mass flowmeter measures air/gas flow using the principle of convective heat transfer. The system utilizes two resistance temperature detectors (RTDs); an integrated circuit heats one to serve as the flow sensor, while the second acts as a reference sensor to establish the baseline gas temperature. The instrument maintains a constant temperature differential between these two elements. As medium pass across the heated sensor, they carry heat away from it, causing a cooling effect and subsequent energy loss. This temperature variance generates a highly accurate signal directly proportional to the medium velocity; a greater temperature difference indicates a higher flow rate.

The TMF200 thermal mass flowmeter features an insertion design optimized for general industrial applications, offering a highly cost-effective solution for larger pipelines. Customers benefit from its highly reliable performance, minimal pressure drop, wide turndown ratio, and exceptional repeatability, alongside its straightforward installation and user-friendly operation.



Characteristics

4"...48" (DN100...DN1200)

Accuracy: 2% of reading

Idea for low flow rate

High reliability

No pressure/temperature compensation needed

Easy to install and maintain

Applications

Water treatment

Chips manufacturing

Power plant

Specifications

Measuring range	See measuring range below for details
Applicable medium	Air / Gas
Nominal diameter	4"...48" / DN100...DN1200
Accuracy	2%
Repeatability	±0.25% of reading
Operating voltage	85...230VAC; 18...36VDC
Output signal	Pulse + 4...20mA
	Pulse + 4...20mA with HART
	Modbus RS485
Sensor material	316 stainless steel, Hastelloy C, Titanium
Transmitter housing material	Aluminum alloy
Flange material	Stainless steel
Response time	<100ms
Sensibility	<0.05m/s
Medium Temperature	-13...248°F / -25...120°C (Standard)
	-13...482°F / -25...250°C (High temperature)
Ambient Temperature	Sensor: -13...140°F / -25...60°C
Ambient Humidity	≤85%RH (68°F / 20°C)
Power consumption	Less than 20W
Electrical connection	M20 × 1.5
Process connection	3/4" in R coupling
Exproof	Exd II CT6 Gb
Protection class	Integrated type: IP65
	Remote type: IP65(transmitter), IP68(sensor)

Reference conditions of measurement accuracy

Ambient temperature	20°C / 68°F
Medium temperature	20°C / 68°F
Pressure	1 bar
Power	24VDC + 15%
Stability time	25 mins
Upstream straight pipeline	10 x DN
Downstream straight pipeline	5 x DN
Flow state	Uniform distribution

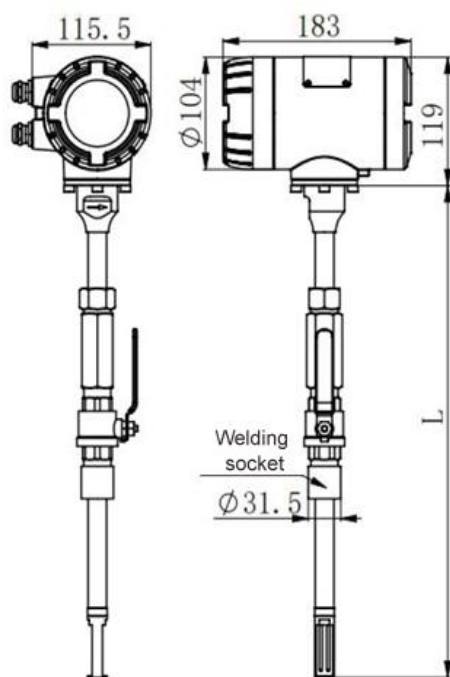
Features

Auto "ZERO" calibration	See manual for details
Self-monitoring and diagnostic	Monitor citation circuit, electrode and transmitter malfunction
Change flow direction real time	See manual for details
Bi-directional measurement	Measuring both forward and reverse flow
Flow rate unit selectable	Nm ³ /h, Nm ³ /min, L/h, L/min, t/h, kg/h, kg/min, SCFM.....
Damping time	0...32s programmable
Low flow cut off	Adjustable in 0...10%
Output	Pulse, 4~20mA, RS485, HART
Display	Instantaneous/accumulated flow rate, current, alarm, flow velocity

Flow Range

Inch	DN	Flow Range	
		SCFM	Nm ³ /h
4"	100	7.5...1700	12...2800
-	125	13...2700	20...4400
6"	150	19...3900	30...6300
8"	200	31...7000	50...11300
10"	250	62...11000	100...17600
12"	300	95...15800	150...25400
14"	350	125...21500	200...34600
16"	400	156...28000	250...45200
18"	450	185...35600	300...57200
20"	500	220...44000	350...70600
24"	600	310...63000	500...101700
28"	700	375...86000	600...138400
32"	800	500...112000	800...180800
36"	900	625...143000	1000...228900
40"	1000	750...176000	1200...282600
48"	1200	1250...253000	2000...406900

Dimension in mm



Inch	DN	L
4"...16"	DN100-DN400	466
18"...28"	DN450-DN700	586
32"...40"	DN800-DN1000	786
48"	DN1100-DN1200	1086

Order Code

Example: TMF200-I250ABKSADP0Y

1. TMF200-

F	Integral transmitter
R	Remote transmitter

2. Pipe size

100	4" (DN100)
125	DN125
150	6" (DN150)
200	8" (DN200)
250	10" (DN250)
300	12" (DN300)
350	14" (DN350)
400	16" (DN400)
450	18" (DN450)
500	20" (DN500)
600	24" (DN600)
700	28" (DN700)
800	32" (DN800)
900	36" (DN900)
1000	40" (DN1000)
1200	48" (DN1200)

3. Output

A	Pulse 4...20mA
H	Pulse 4...20mA with HART
R	Modbus RS485

4. Accuracy

B	2%
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5. Sensor material

K	316L Stainless steel
C	Hastelloy C
T	Titanium

6. Body material

S	304 stainless steel
L	316L stainless steel

7. High temperature

A	-13...248°F / -25...120°C
B	-13...482°F / -25...250°C

8. Power supply

D	18...36VDC
T	85...230VAC

9. Ex-proof

P	Non-hazardous area
E	Hazardous area

10. Connectivity from Sensor to Remote Transmitter

0	Select 0 for integral transmitter
5	Cable length: 5m / 16ft Custom cable length: 2-50m (6.5...164ft)

11. Welding socket

N	None
Y	Welding socket is included

* Isolation valve is included by default