

Insertion Type Thermal Mass Flowmeters, TI Series

Product Catalogue



Accurate Flowmeters & Instrumentation Pvt. Ltd. (Formerly RR Flowmeters Pvt. Ltd.)

Head Office : G1, Sai Thirumala Heights, Plot No. 54, 55 & 91, Bhandari Layout, Nizampet, Hyderabad - 500090, INDIA.
Tel : +91 - 40 - 2980 3333, Telefax : +91 - 40 - 2980 2323, Mobile : +91- 9490 262626

Factory : Plot No. 71 & 82, Sy. No. 139, Aminpur Village, Patancheru Mandal, District Medak - 502032



Introduction:

TI series Thermal Mass Flowmeters are made according to the principle of Heat dissipation / cooling (King S Law). That is, the number of molecules which flow through heat source is proportional to the loss of heat. The product produced with famous factory sensor, which have unique characteristics in fluid measurement, can measure gases in harsh conditions. Reached new level in terms of reliability, repeatability and accuracy, and can be installed in hazardous areas (Explosion-proof function is selectable)

Features:

- Different gas coefficient arbitrarily set
- Show multiple sets of values
- Output analog calibration
- Multi-point non-linear curve correction
- Wide range ratio of measurement; 50:1 / 100:1 / 1000:1
- On-site instrument can be set
- Close to zero pressure loss of the closed sensor
- Is not sensitive to vibration
- Straight pipe requirements smaller, 1D-2D can achieve high-precision measurement
- Measured value and pressure has nothing to do, the real mass flow detection
- Plug-in installation and with the ball valve, the real safe and convenient installation
- Expert algorithm to achieve high precision and stability of the instrument
- Less than one second response time
- LCD display, with multiple display interfaces



Specifications:

Applicable media	Dry Gas or Air
Measuring range	0.05-141m/s (at standard conditions 20°C, 0.101325MPa), if flow velocity out of this range, please consult with the manufacturers customization
Accuracy	1.5% ordinary, $\pm 1\%$ on order
Repeatability	0.25% of full scale
Temperature range	Ambient temperature -20°C ~ 70°C; Gas / Air Temperature -20°C ~ 100°C, -20°C ~ 230°C, -40°C ~ 350°C, -20°C ~ 550°C
Power supply	24VDC / 220VAC / 110VAC
Analog output	4 ~ 20mA Optoelectronic isolation
Response time	≤ 1 second
Temperature Coefficient	0.05% / °C
Communication Interface	RS485 (RTU) Optoelectronic isolation
Online display	Standard display Instantaneous and cumulative flow / intelligent display 7-bit instantaneous flow, cumulative flow (optional display: flow velocity, percentage, temperature)
Process pressure	≤ 10 MPa (the higher pressure is to be customized with the manufacturers)
Process connection	<ol style="list-style-type: none"> 1. Immersion type assembled ball valve with the locking device; 2. Pipe type flange connection; 3. Other mounting methods need to consult with manufacturer in advance
Explosion-proof rating	ExdIICT6
Protection class	Sensor IP67; Transmitter IP65
Alarm point	Relay dry contact output is optional; optional upper limit single alarm or upper & lower limit double alarm point
Sensor diameter	3mm/4mm/5mm
Probe rod diameter	Standard is 19mm. other size 25mm / 12.9mm on declare. Special requirements, please contact the manufacturer customization
Sensor material	Standard is SS304; 316L; Hastelloy C; Tantalum
Probe material	Standard is SS304; 316L; Hastelloy C; Tantalum
Shell material	Hazardous areas Install powder coated aluminum castings shell
Electrical interface	M20×1.5
Pressure loss	Insertion type: pressure loss can be ignored when pipes size > DN80; Piping type: pressure loss can be ignored



Calibration Setup

Compact, LED type



Compact, LCD type



Remote type



Details to be furnished by the Purchaser:

Project	Data at working Conditions Options		Provide complete details of type, work conditions, etc.				
			One	Two	Three	Four	Five
Process conditions	Medium to measure						
	Flow (Nm ³ /h)	Normal use					
		Max					
		Scale					
	Medium Temperature (°C)	Normal					
		Lowest					
		Highest					
	Pipeline Pressure (Kpa)	Normal					
		Lowest					
		Highest					
Measured piping conditions	Round tube	ID × thick mm					
	Rectangular tube	Section H × W × thick					
	Straight pipe Length	Upstream (m)					
		Downstream (m)					
	Site pipe material						
	Gas flow (←↑→↓)						
Power supply	DC24V、AC220V						
Output	4-20mA DC						
	RS485 (RTU)						
Display	Instantaneous flow display						
	Instantaneous flow and cumulative flow Display						
	Remote control room flow totalizer display						
Application Requirements	Normal type						
	Explosion-proof (ExdIICT6)						
	Corrosion resistant						
	High temperature (>230°C)						
Seal	Threaded						
Connection	Flanged						
Component	Ball valve Continuous flow disassembly						
Structure type	Insertion						
	Integral piping						
	Split Insertion						
	Split piping type						
Others	This specification flow meter quantity		set	set	set	set	set
Others requirements							

Flowrange:

Unit: (Nm³/h)

Size DN (mm)	Air	Argon (Ar)	Oxygen (O ₂)	Carbondioxide (CO ₂)
15	65	90	32	45
20	110	160	55	80
25	180	250	89	130
32	290	400	144	210
40	450	650	226	330
50	700	1000	352	520
65	1200	1700	600	880
80	1800	2550	900	1300
100	2800	4000	1420	2000
125	4400	6200	2210	3200
150	6300	8950	3200	4600
200	10000	15900	5650	8300
250	17000	24800	8830	12900
300	25000	35800	12720	18500
400	45000	63600	22608	33000
500	70000	99400	35325	51500
600	100000	143200	50638	74500
700	135000	194900	69240	101500
800	180000	254500	90432	132500
900	220000	322000	114500	167800
1000	280000	397700	141300	207100
1200	400000	572700	203480	298200
1500	600000	894800	318000	466000
2000	700000	1591000	565200	828500

Note: For other pipe / duct sizes / Flow ranges contact the factory.

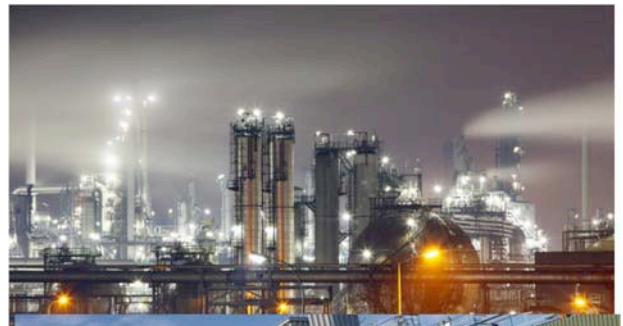
Standard Process conditions: Temperature 20°C, Pressure 101.325KPa

Applications:



Because of TI series flow meter unique advantages, they can provide professional measurement solutions for various applications and various industries. Main application industries: environmental protection, petroleum, petrochemical, power, metallurgy, chemical, food, scientific research and other industries.

- Factory compressed air measurement
- Boiler gas and air supply measurements
- Flare gas measurement
- Steel mills gas measurement
- Fertilizer plant ammonia measurement
- Measurement of Blast Furnace Gas in Ironworks and Coke
- Oven Gas in Coking Plant
- Powder/gas ratio of pulverized coal combustion process control
- Funnel flue exhausts testing SO₂ and NO_x emissions Fuel cell plant gas flow measurement
- Cement Industry Vertical Milling Machine discharge Hot air Flow Control
- Heat treatment quenching furnace and other hydrogen, oxygen, nitrogen and other gas control Natural gas measurement
- Measurement of CL₂ and other corrosive gases in chemical industry.
- Measurement of various high purity gases in the laboratory
- Fresh air add in food processing operations
- The carbon dioxide treatment in the brewery
- Flow Detection of Hot Air in Bottle sterilizer in medical industry Measurement and control of Gas in Heating Furnace. Measurement of Gas flow in Industrial pipeline.



Model Selection:

Parameter	Details	Code	Selection
Type	Insertion type	TI	TI
Pipe diameter / Duct height	00100 ~ 9999		
Installation type	Flanged	A	
	Hot Tap	B	
Transmitter Mounting	Compact type	1	
	Remote type	2	
Enclosure type	Normal	A	
	Explosion Proof (ExdIICT6)	B	
	IP65 (Weather Proof)	C	
	IP68 (Water Proof)	D	
Enclosure Material	Die-cast Alluminium	1	
	SS304	2	
Display type	Blind	A	
	LED	B	
	LCD	C	
Probe / Stem Material	SS304	1	
	SS316	2	
	SS316L	3	
	Other	4	
Sensor Material	SS304	A	
	SS316	B	
	SS316L	C	
	Hastelloy C	D	
	Platinum	E	
	Tantalum	F	
	Other	G	
Power Supply	220VAC	1	
	110VAC	2	
	24VDC	3	
Maximum Pressure	≤1MPa	A	
	≤1.6MPa	B	
	≤10MPa	C	
Temperature Range	-40 ~ 100°C	1	
	-40 ~ 230°C	2	
	-40 ~ 350	3	
	-40 ~ 550°C	4	
Signal Output	No	A	
	Pulse	B	
	4 ~ 20mA	C	
	RS485	D	
	4 ~ 20mA, Isolated	E	
	4 ~ 20mA, HART	F	
Relay Output	No	1	
	Low & High	2	
	Low-low, Low, High, High-High	3	

Example:

Model Code of Insertion type Thermal Mass Flowmeter, for 600mm diameter pipe, Hot tap installation type, with remote mount, normal type enclosure made of Die-cast Alluminium, with LCD Display, with SS316L stem & sensor material, with 24VDC power source, process pressure less than 10kg/cm^2 , Process temperature as high as 525°C , with 4 ~ 20mA Isolated Output, and 2 point Relay Output for Low and High Flow is: **TI0600B2C1C3C3A4E2**