GAS TURBINE FLOW METER

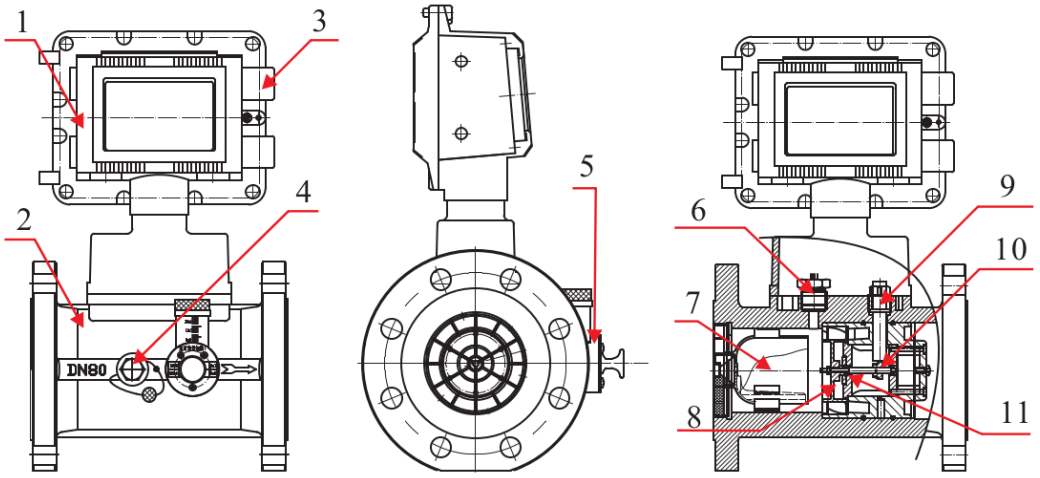
AI.Gas.TF Series

OVERVIEW

AI.Gas.TF Series gas turbine flow meter is one kind of precision measuring instruments which for gas measuring. This flow meter has the characteristics of low pressure loss,high accuracy, low initiating flow, anti vibration and pulsation flow resistance, widely range ratio etc.
When design AI.Gas.TF Series gas turbine flow meter, we consider the gas compressibility, Volume quantity is closely related with medium temperature and pressure, thus we add the temperature and pressure sensors so that monitor the change of medium temperature and pressure, directly make working condition flow change into standard condition flow and ensure measuring accuracy.
AI.Gas.TF Series gas turbine flow meter could be separately used for gas that is clean, low viscosity, such as Air, Natural gas, LPG, Methane gas, N2, Ar, CO2, CO etc.
AI.Gas.TF Series could be widely used in gas measuring from Petroleum, Chemical, Electric power, Industrial boiler etc. In addition, AI.Gas.TF Series gas turbine flow meter also be used in Gas-fired,Gas pipeline network, city gas field etc.

WORKING PRINCIPLE

AI.Gas.TF Series gas turbine flow meter is made up of base table and display, among them, the base table contains body, Rectifier, Turbo, Temperature sensor, Magnetic switch sensor, Pressure sensor and other important parts.



1.Flow totalizer
2.Shell
3.Cable entry
4.Pressure port
5.Fuel pump
6.Pressure sensor
7.Rectifier
8.High-strength antioxidation turbine
9.Temperature and flow sensor
10.Signal wheel
11.High-precision imported dustproof bearings

When medium enter the flow meter,through integration of the two level rectifier, medium be rectified and accelerated, then acts on the turbine blades which make a certain angle with flow direction,same time turbine will produces rotational torque,turbine blades begins to rotate after turbine overcomes the resistance moment and friction moment.
When all moments reach balance, invariables turning speed, turbine rotation angular velocity is liner relationship with flow. Utilizing electromagnetic induction principle, through the top magnetizer of rotating turbine generator periodically change magnetic resistance and make magnetic field change accordingly, thus induction of the pulse signal that it is proportional to the volume flow rate.

This signal is amplified by preamplifier and shaped,the signal will be entered into integrating instrument together the temperature and pressure signal, then the integrating instrument will calculate and convert to flow value, the directly display standard instantaneous volume flow and total flow.

FEATURES

- Rectifying device could be installed at the installation condition is not good and medium velocity change larger, also could keep the reliability of measurement.

- Dust-proof structure can effectively prevent the impurity of the medium enter into bearing and cause rapid wear and stuck.

- Low installation requirements,front straight pipe ≥2D,back straight pipe ≥1D, this could ensure the accuracy of flow meter.

- Intelligent integration design could dynamically detect the temperature and pressure of medium, and automatic compensation and compression factor correction, directly display gas standard instantaneous flow and standard total flow.

- Aluminum alloy turbine have some features: High strength, Corrosion resistance, Anti-aging, Long service life, High accuracy and good repeatability.

- Advanced microcomputer technology and high performance single chip make complete meter more powerful and superior performance.

- Advanced double power supply and micro power consumption technology, complete meter with low power consumption. Both could run on battery for a long time (Two lithium batteries could be used 3 years) and also could connect outside power.

- Large screen backlight LCD display, could clearly reading under dark environment.

- Flow meter with pulse output, also could add 4-20mA output, IC card quantitative pulse signal etc. according to user's requirement.

- Adopt RS485 communication, could be matched with MODEM, through telephone network could build automatic reading management system, higher automation.

- Adopt E2-PROM data storage technology, setup parameters could be keep long time after outage.
- The low voltage alarm (≤2.7V) of internal battery could remind user to replace battery.

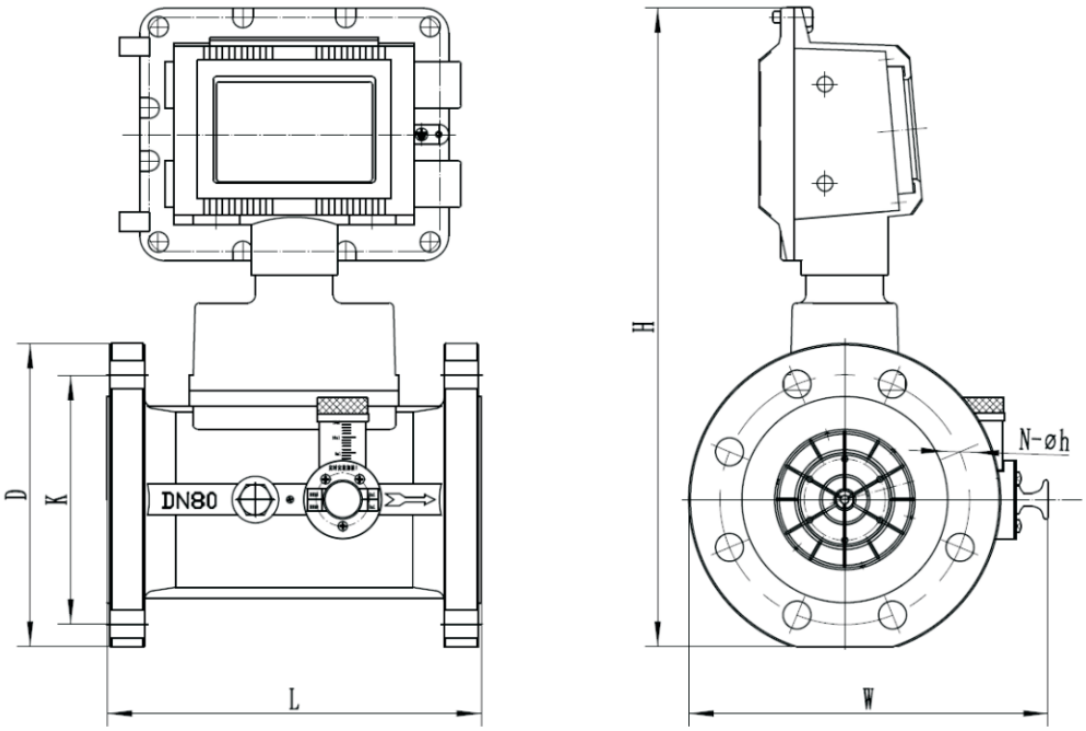
- The intelligent integrating instrument could rotate 180 degrees, it is convenient reading, Unexpected power outage, Autosave data, Prevent data lost.
- Flow meter with signal output calibration function and could 4,8,16,20mA and 0~1000Hz.
- Adopt over wide temperature LCD technology, and LCD display converter can bear max.80°C.
- Outside power is isolated with main circuit of flow meter, Isolation voltage reach 1000V.
- Reliable electromagnetic compatibility design.
- One aviation plug,all output terminal.

FLOW RANGE

Diameter (mm/inch)	Model	Flow Specifi Cation	Flow Range (m^3/h)	Startup Flow Rate (m^3/h)	Max. Pressure Loss (kPa)	Shell Material	Weight (kg)
DN25(1″)	25(A)	G50	5-50	≤1	1	Standard: Aluminum Alloy (Pressure ≤1.6Mpa) Optional: SS304	7
DN40(1½″)	40(A)	G60	6-60	≤1	1		8
50(2″)	50(A)	G40	6.5-65	≤1.3	0.9		8.5
	50(B)	G65	8-100	≤1.6	0.8		
	50(C)	G100	10-160	≤2.4	2.0		
80(3″)	80(A)	G100	8-160	≤2.4	1.0		9.5
	80(B)	G160	13-250	≤3.0	1.6		
	80(C)	G250	20-400	≤5.0	2.0		
100(4″)	100(A)	G160	13-250	≤3.3	1.0		15
	100(B)	G250	20-400	≤4.2	1.6		
	100(C)	G400	32-650	≤6.7	1.8		
150(6″)	150(A)	G400	32-650	≤7.8	1.6		27
	150(B)	G650	50-1000	≤10	2.0		
	150(C)	G1000	80-1600	≤12	2.3		
200(8″)	200(A)	G650	50-1000	≤13	1.6	SS304	45
	200(B)	G1000	80-1600	≤16	2.0		
	200(C)	G1600	130-2500	≤20	2.2		
250(10″)	250(A)	G1000	80-1600	≤20	1.2		128
	250(B)	G1600	130-2500	≤22	2.0		
	250(C)	G2500	200-4000	≤25	2.3		
300(12″)	300(A)	G1600	130-2500	≤22	1.6		265
	300(B)	G2500	200-4000	≤25	2.0		
	300(C)	G4000	320-6500	≤35	2.3		
400(16″)	400(A)	G1600	300-2500	≤25	1.8		380
	400(B)	G2500	500-4000	≤35	2.0		
	400(C)	G4000	600-8000	≤40	2.3		

Noted: 1. Standard Accuracy 1.5%; Optional 1.0%;
2. "Max Pressure Loss" is the pressure loss under standard condition, air, flow at Qmax;
3. Weight: under 1.6Mpa reference value;
4. If need other pressure range or material, need double check;

FLOW RANGE



Nominal Dia.	L	D	K	N-Øh	H	W	Notes
DN25(1″)	200	115	85	4-φ14	335	200	
DN40(1½″)	200	150	110	4-φ18	365	230	
DN50(2″)	150	165	125	4-φ18	375	275	
DN80(3″)	240	200	160	8-φ18	409	280	
DN100(4″)	300	220	180	8-φ18	430	285	1.Flange:DIN PN16
DN150(6″)	450	285	240	8-φ22	495	370	2.Dimension according to pressure of 1.6Mpa
DN200(8″)	600	340	295	12-φ22	559	390	
DN250(10″)	750	405	355	12-φ26	629	480	
DN300(12″)	900	460	410	12-φ26	680	535	
DN400(16″)	1200	580	525	16-φ30	793	665	

ORDER CODE

AI.Gas.TF Series	Gas Turbine Flow Meter
	Size/Model
	DN25, DN40, DN50, DN80, DN100, DN150, DN200, DN250, DN300, DN400
	Accuracy
	1: 1.5% (Standard)
	2: 1.0%
	Body Material
	A: Aluminum Alloy (Size ≤DN150mm)
	304: SS304
	316: SS316
	Flow Range (Refer to Size/Model and Table on page 4)
	***A**
	***B**
	***C**
	Output/Communication
	P4: Pulse+4~20mA
	P4R: Pulse+4~20mA+RS485
	P4H: Pulse+4~20mA+HART
	Power Supply
	BE2: Battery Powered + External Power DC24V (two-wire)
	BE3: Battery Powered +External Power DC24V (three-wire)
	Flange standard
	D*: D10:DIN PN10, D16:DIN PN16, D25:DIN PN25, D40:DIN PN40
	J*: J10:JIS 10K, J20:JIS 20K, J30:JIS 30K
	A*: A15:ANSI 150#, A30:ANSI 300#, A60:ANSI 600#
	ATEX Version
	1: yes
	0: no

Example:

	Size	*Accuracy*	*Body Material*	*Flow Range*	*Output/Comm.*	*Power Supply*	*Flange Standard*	*ATEX*
AI.Gas.TF	**DN25**	**1**	**A**	**25A**	**P4**	**BE2**	**D10**	**0**

CODE DESCRIPTION:
Gas Turbine Flow Meter AI.Gas.TF Series
DN25: Size/Model
1: 1.5% (Standard) Accuracy
A: Aluminum Alloy (Size ≤DN150mm) Body Material
25A: 5-50 m3/h Flow Range (Refer to Model and Table on page 4)
P4: Pulse+4~20mA Output/Communication
BE2: Battery Powered + External Power DC24V (two-wire) Power Supply
D10: DIN PN10 Flange Standard
0: no ATEX Version

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