



ALTURBINE

Turbine Flowmeter

ALTM-T Series

GENERAL

SMC's low-cost ALTM turbine flow meters are used for the precise measurement of instantaneous flow rates of low-viscosity fluids such as tap and demineralized water, fuels, liquefied gases, light fuel oils, solvents, and pharmaceutical fluids. Turbine flowmeters measure volumetric flow, where fluid passing through the meter body is measured by the mean velocity of the flowing fluid media. Flow rectifiers ensure a laminar flow in the axial direction of the wheel. A low-mass turbine wheel carried concentrically within the meter body is rotated by the fluid. The RPM of the turbine wheel is directly proportional to the mean flow rate within the meter body and directly corresponds to the volumetric flow over a wide range.



FEATURES

- High resolution and fast response time within 5 to 50 msec
- Temperature range from -4~ 250°F (-20 ~ +120°C)
- Pressures up to 3,600 psig (250 bars) using optional high pressure flanges.
- In contact with the fluid media
- For very low flows designed with sapphire bearings
- Factory calibrated, traceable to NIST
- Battery-powered display available
- RS-485 and Hart Communications available

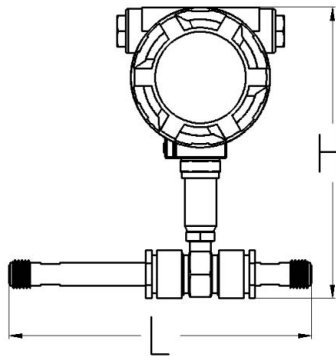
SPECIFICATIONS

- | | | | |
|------------------------------|---|---------------------------------|---|
| • Process Connections: | NPT threads ½"-1½" (40-40mm)
ANSI/DIN Flange for ½"-1½" (15-200mm) | • Retaining Rings: | 316 Stainless Steel |
| • Line Sizes: | 4mm~200mm | • Relative Humidity: | 5%~90% |
| • Process Temperature: | -4~ 250°F (-20 ~ +120°C) | • Power Supply: | 11-27 V _{DC} |
| • Operating Pressure: | up to 25 Mpa | • Cable Entry: | ½ " NPT |
| • Accuracy | ±1% of reading Std; ±0.5% Optional | • Transmitter connection: | M20×1.5 Female |
| • Materials of Construction: | Body: SS# 304 Std, SS# 316 Optional
Rotor: 2Cr13 Stainless Steel
Shaft: Tungsten Carbide
Bearing: Tungsten Carbide
Retaining Rings: SS# 316 | • Enclosure: | NEMA 4/IP65, UC/PM Class 1, Div 1&2, Grp A, B, C, D |
| | | • Ex- Protection | ATEXII2G, ExdII CT6 |
| | | • Ambient Temperature: | -10°C~+55°C |
| | | • Ambient Pressure: | 86~106 KPa |
| | | • Signal Output (std): | Pulse, or 4-20mA |
| | | (opt): | RS485, HART |
| | | • Signal Transmission Distance: | ≤1,000 m (3,000 ft) |

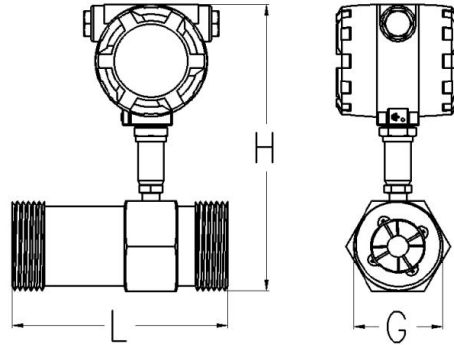
Rev: 05/05/2021

DIMENSIONS

■ Thread connection type



1/8 ~ 3/8" (DN4-DN10): Threaded connections
(straight pipe run included)

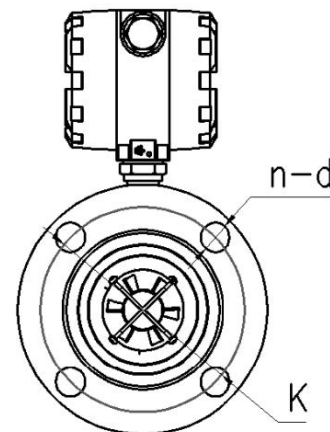
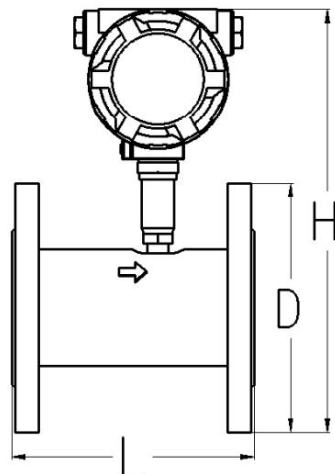


1/2 ~ 2" (DN15-DN50): Threaded connections

METER CALIBER (mm)	L (in) (mm)		H (in) (mm)								weight (lb) (kg)		G (male thread)
			Pulse type		Explosion-proof pulse type		4-20mA output type		Intelligent display type				
1/8" (DN4)	8.86	225	5.5	140	5.71	145	5.71	145	8.26	210	7.75	3.5	G1/2
1/8" (DN6)	8.86	225	5.5	140	5.71	145	5.71	145	8.26	210	7.75	3.5	G1/2
3/8" (DN10)	13.58	345	5.71	145	5.91	150	5.71	145	8.26	210	7.75	3.5	G1/2
1/2" (DN15)	2.95	75	5.71	145	5.91	150	5.91	150	8.46	215	7.75	3.5	G1
3/4" (DN20)	3.15	80	5.91	150	6.10	155	6.10	220	8.66	220	7.75	3.5	G1
1" (DN25)	3.94	100	6.10	155	6.29	160	6.29	160	8.85	225	7.75	3.5	G1 1/4
1 1/4" (DN32)	5.51	140	6.89	175	7.09	180	7.09	180	9.65	245	9.92	4.5	G2
1 1/2" (DN40)	5.51	140	7.09	180	7.28	185	7.28	180	9.84	250	11.02	5	G2
2" (DN50)	5.91	150	7.28	185	7.48	190	7.48	190	10.04	255	13.23	6	G2 1/2

Note: The above DN4-DN10 flow sensor contains the straight pipe section size standard, and the DN15-DN50 caliber flow sensor does not include the straight pipe section size.

■ Flanged connection type



Flanged connection diagram

■ Flanged connection size dimensional table

METER CALIBER (mm)	L (in) (mm)		D (in) (mm)		K (in) (mm)		H (in) (mm)								weight (lb) (kg)		Standard with-stand voltage
							Pulse output type		Explosion-proof pulse output type		4-20mA output type		Intelligent display type				
DN15	2.95	75	3.74	95	2.55	65	6.89	175	7.09	180	7.09	180	245	9.65	7.75	3.5	2.5 MPa
DN20	3.14	80	4.13	105	2.95	75	7.28	185	7.48	190	7.48	190	255	10.04	9.92	4.5	
DN25	3.94	100	4.53	115	3.34	85	7.87	200	7.68	195	7.68	195	260	10.24	11.02	5	
DN32	5.51	140	5.51	140	3.94	100	8.27	210	8.46	215	8.46	215	275	10.83	15.43	7	
DN40	5.51	140	5.91	150	4.33	110	7.68	195	8.66	220	8.66	220	285	11.22	17.64	8	
DN50	5.91	150	6.49	165	4.92	125	9.06	235	9.25	235	9.25	235	295	11.61	22.05	10	
DN65	6.69	170	7.28	185	5.71	145	10.03	255	10.24	260	10.24	260	325	12.79	24.25	11	1.6 MPa
DN80	7.87	200	7.87	200	6.29	160	10.24	260	10.43	265	10.43	265	330	12.99	44.09	20	
DN100	8.66	220	8.66	220	7.08	180	11.22	285	11.22	285	11.22	285	350	13.78	46.30	21	
DN125	9.84	250	9.84	250	8.26	210	12.20	310	12.40	315	12.40	315	380	14.96	88.18	40	
DN150	11.81	300	11.22	285	9.44	240	13.58	345	13.58	345	13.58	345	410	16.14	99.21	45	
DN200	13.78	350	13.38	340	11.61	295	15.55	395	15.75	400	15.75	400	465	18.31	103.61	47	

Note: The above DN4-DN10 flow sensor contains the straight pipe section size standard, and the DN15-DN50 caliber flow sensor does not include the straight pipe section size.
The outer packaging of DN15-DN65 is shipped in a carton, and the outer packaging of DN80-DN200 is shipped in a wooden box.

■ Intelligent Display Type with- Ex Approval



- Explosion proof according ATEX, IECEx and CSA/CSA-US.
- 7 digit flow rate / total and 11 digit accumulated total.
- 16 point linearization of the flow curve - with interpolation.
- High and low flow rate alarms.
- Clear flashing LED backlight for alarm notification.
- Power options: Loop powered, battery and 9 - 27V_{DC}.
- Integrated HART 7 communication protocol.
- Isolated, loop powered 4 - 20mA output.
- Four configurable digital outputs for high and low flow rate alarms or scaled pulse retransmission of the linearized accumulated total.

** Please contact your local SmartMeasurement application engineer
 You also need to provide the following information:

TYPE OF LIQUID	Please provide the name of your liquid, including operating density and viscosity
FULL SCALE FLOW	Maximum and minimum flow rates, units must be volumetric such as LPM or GPM
LINE SIZE	Please indicate pipe size as well connection type (flange, threaded, etc..)
PROCESS PRESSURE AND TEMPERATURE	We will calibrate your flowmeter as close to your operating conditions as possible
PRESSURE DROP	Please indicate the maximum pressure drop (see graph) that your process can withstand
TYPE OF ELECTRONICS	Indicate if you want integral, remote panel or remote wall mounted electronics
POWER REQUIREMENTS	Please specify your power requirements such as 24 V _{DC} or 115 V _{AC} or 230 V _{AC}

MODEL SELECTION GUIDE			ALTM-T-	**	**	**	**	**	**	DESCRIPTION
DN4	0.04~0.25 m ³ /hr, 1% accuray	0.04~04 m ³ /hr, 1.5% accuray	004							Internal Dia.
DN6	0.1~0.6 m ³ /hr, 1% accuray	0.06~0.6 m ³ /hr, 1.5% accuray	006							
DN10	0.2~1.2 m ³ /hr, 1% accuray	0.15~1.5 m ³ /hr, 1.5% accuray	010							
DN15	0.6~6 m ³ /hr, 0.5% accuray	0.5~5 m ³ /hr, 1% accuray	015							
DN20	0.8~8 m ³ /hr, 0.5% accuray	0.45~9 m ³ /hr, 1% accuray	020							
DN25	1.0~10 m ³ /hr, 0.5% accuray	0.5~10 m ³ /hr, 1% accuray	025							
DN32	1.5~15 m ³ /hr, 0.5% accuray	0.8~15 m ³ /hr, 1% accuray	032							
DN40	2.0~20 m ³ /hr, 0.5% accuray	1.0~20 m ³ /hr, 1% accuray	040							
DN50	4.0~40 m ³ /hr, 0.5% accuray	2.0~40 m ³ /hr, 1% accuray	050							
DN65	7.0~70 m ³ /hr, 0.5% accuray	5.0~70 m ³ /hr, 1% accuray	065							
DN80	10~100 m ³ /hr, 0.5% accuray	7~100 m ³ /hr, 1% accuray	080							
DN100	20~200 m ³ /hr, 0.5% accuray	10~200 m ³ /hr, 1% accuray	100							
DN125	25~250 m ³ /hr, 0.5% accuray	13~250 m ³ /hr, 1% accuray	125							
DN150	30~300 m ³ /hr, 0.5% accuray	15~300 m ³ /hr, 1% accuray	150							
DN200	80~800 m ³ /hr, 0.5% accuray	40~800 m ³ /hr, 1% accuray	200							
Basical type - pluse output, blind, 24V _{DC}			N							Transmitter style
Basical type - two wire 4-20mA output, blind, 24V _{DC}			A							
Battery type - with display and no outputs			B							
Standard type - two wire 4-20mA output, display, 24V _{DC}			C							
Smart type - Contact Factory for details			**							
Standard Temp -4 ~ 176°F (-20 ~ +80°C)			S							Working Temperature
Extended fluid - up to 248°F (120°C)			M							
High Temperature - up to 300°F (150°C)			H							
Other Temperature - please contact factory			**							
232 psi (1.6 Mpa)						1.6				Working Pressure
362 psi (2.5 Mpa) - up to 3" (DN80)						2.5				
580 psi (4.0 Mpa) - up to 1½"(DN40)						4.0				
913 psi (6.3 Mpa) - up to 1" (DN25)						6.4				
Other Pressure - please contact factory						**				
NPT male thread - For DN4~DN40							N			Connection
DIN PN16 flange - For DN15~DN200							D			
ANSI 150# flange - For DN15~DN200							F1			
ANSI 300# flange - For DN15~DN200							F2			
Other connection - please contact factory							**			
SS # 304							G			Flowbody material
SS # 316							316			
Other material							OM			
NONE							NN			Digital Communication
RS485 - only for standard counter							485			
None option								NN		Option
Exd proof - ExdIIBT6								EX		
Flow computer								FC		

