



Liquid Turbine Flow Meter



ETL

Liquid Turbine Flow Meter

ETL-N1 series



ETL-N2 & A series



ETL-E series



Operating Principle

Fluid entering the meter first passes through an inlet flow straightener that reduces its turbulent flow pattern. Fluid then passes through the turbine, causing the turbine to rotate at a speed proportional to fluid velocity. As each turbine blade passes through the magnetic field generated by the meter's magnetic pickup, an AC voltage pulse is generated. These pulses provide an output frequency that is proportional to volumetric flow.

Technical Data

- Output: Pulse ; 4-20mA
- Accuracy: ± 1.0 of Rate ; $\pm 0.5\%$ of Rate
- Operating Temp.: $-20...+60^{\circ}\text{C}$
- Fluid Temp.: $-20...+150^{\circ}\text{C}$
- Body Material: SS304 ; SS316
- Rotor Material: 2Cr13 ; CD4MCu
- Bearing Material: Tungsten Carbide

Flow Range

Diameter (mm)	Standard Range (m ³ /h)	Extended Range (m ³ /h)
4	0.04-0.25	0.04-0.4
6	0.1-0.6	0.06-0.6
10	0.2-1.2	0.15-1.5
15	0.6-6	0.4-8
20	0.8-8	0.45-9
25	1-10	0.5-10
32	1.5-15	0.8-15
40	2-20	1-20
50	4-40	2-40
65	7-70	4-70
80	10-100	5-100
100	20-200	10-200
125	25-250	13-250
150	30-300	15-300
200	80-800	40-800



Description

The liquid turbine flow meter in the series ETL are specially designed for usage in water, diesel, gasoline and other fluid measurement and control systems. They operate according to the turbine principle, i.e. the speed of an impeller turning in the fluid flow is measured and converted into pulse or 4-20mA signals

Model Selection :

Model	Suffix Code									Description
ETL-	①	②	③	④	⑤	⑥	⑦	⑧	⑨	Liquid Turbine Flowmeter
Diameter	XXX									Stand for diameter 004: DN4; 006: DN6 100: DN100; 200: DN200
Converter Type	N1									24V DC; Pulse output; No display
	N2									24V DC; Pulse output; No display; Ex
	A									24V DC; 4-20mA output; No display; Ex
	E1									Battery power supply; No output; Ex ; Digital display
	E2									24V DC; 2- wire 4-20mA output; Ex ; Digital display
	E3									24V DC; Pulse output; Ex; Digital display
	E4									24V DC; 0-20mA output; Ex; Digital display
	E5									24V DC; 3-wire 4-20mA / Pulse output; EX; Digital display
	G									220V AC; 4-20mA output; Ex; Digital display
	FE									FE: Fluidwell E series converter(Refer to page 23)
	FF									FF: Fluidwell F series converter(Refer to page 24)
	Notice:									
Accuracy		10								± 1.0% of rate
		05								±0.5% of rate
Flow Range				S						Standard Range
				E						Extended Range
Body Material					S4					SS304
					S6					SS316
Rotor Material						Cr				2Cr13
						CD				CD4MCu
Explosion Proof							BT			Exd II BT6
							NA			No explosion proof
Connection								THM		Male thread; Available from DN4... DN50
								THF		Female thread; Available from DN4... DN50
								WAF		Wafer connection
								DXX		D16: DIN PN16 Flange; D25: DIN PN25 Flange...
								AXX		A15: ANSI 150# Flange; A30: ANSI 300# Flange...
								JXX		J10: JIS 10K Flange; J20: JIS 20K Flange...
Temperature Rating								T1		-20...+80°C
								T2		-20...+120°C
								T3		-20...+150°C

Example:

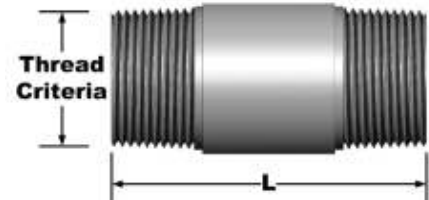
Model Code: ETL ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
050 E5 10 S S4 Cr BT D16 T2

- ① 050: DN50
- ② E5: 3- wire 4-20mA / Pulse output; 24V DC power supply
- ③ 10: 1.0% of rate accuracy
- ④ S: 0.2-1.2m³/h
- ⑤ S4: SS304 body material
- ⑥ Cr: 2Cr13 rotor
- ⑦ BT: Exd II BT6
- ⑧ D16: Flange DIN PN16
- ⑨ T2: -20...120°C

Dimensions :

(1) Thread Connection

Diameter (mm)		L (mm)	Thread Criteria
4		270	G 1/2"
6		270	G 1/2"
10		390	G 1/2"
15		75	G 1"
20		80	G 1"
25		100	G 1-1/4"
32		140	G 2"
40		140	G 2"
50		150	G 2-1/2"

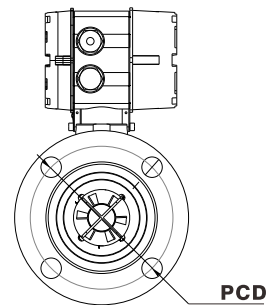
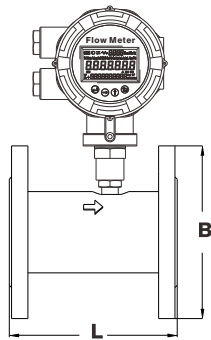


Male Thread Connection

Notice: Other thread criteria is available on request. (Female / Male thread is optional for G, NPT, BSP)

(2) Flange Connection

Notice: The standard flange is DIN PN16; but ANSI and JIS Flange are available on request.



Diameter		L	B	PCD	Bolt Hole Quantity
(Inch)	(mm)	(mm)	Flange Diameter (mm)	Bolt Circle Diameter (mm)	
1/2"	15	75	95	65	4
3/4"	20	80	105	75	4
1"	25	100	115	85	4
1-1/4"	32	140	140	100	4
1-1/2"	40	140	150	110	4
2"	50	150	165	125	4
2-1/2"	65	170	185	145	4
3"	80	200	200	160	8
4"	100	220	220	180	8
5"	125	250	250	210	8
6"	150	300	285	240	8
8"	200	360	340	295	12

Notice: Dimensions above is for DIN PN16 Flange.

Sanitary Liquid Turbine Flow Meter



Description

The sanitary liquid turbine flow meter is specifically designed for measurement of food liquids like milk, cream, juice of various fruits, pharma liquids etc. It is available with compact or remote version of transmitter can be installed either horizontally or vertically with a variety of optional end-fittings to meet your requirements.

- DN4-DN100
- Viscosity from 1 to 10 cst
- Pressure resistant to 10 bar
- Communication: Modbus RS485

Model Selection :

Model	Suffix Code									Description	
ETLS-	①	②	③	④	⑤	⑥	⑦	⑧	⑨	Sanitary Liquid Turbine Flowmeter	
Diameter	XXX									Stand for diameter 004: DN4; 100: DN100	
Converter Type	N1										24V DC; Pulse output; No display
	N2										24V DC; Pulse output; No display; Ex
	A										24V DC; 4-20mA output; No display; Ex
	E1										Battery power supply; No output; Ex; Digital display
	E2										24V DC; 2-wire 4-20mA output; Ex; Digital display
	E3										24V DC; Pulse output; Ex; Digital display
	E4										24V DC; 0-20mA output; Ex; Digital display
	E5										24V DC; 3-wire 4-20mA / Pulse output; EX; Digital display
	G										110-240V AC; 4-20mA output; Ex; Digital display
	FE										Fluidwell E series converter (Refer to page 23)
	FF										Fluidwell F series converter (Refer to page 24)
	Notice:										1) Modbus RS485 is optional for E2, E3, E4, E5 and "E" type 2) Dual Power(24V DC+ Battery) is optional for E2, E3, E4, E5 and G
Accuracy	10										± 1.0% of rate
	05										± 0.5% of rate
Flow Range			S								Standard Range
			E								Extended Range
Body Material					S4					SS304	
Rotor Material					Cr					2Cr13	
					CD					CD4MCu	
Explosion Proof							BT			Exd II BT6	
							NA			None	
Connection							TRC			Tri-clamp for sanitary connection	
Temperature Rating							T1			-20...+80°C	
							T2			-20...+120°C	
							T3			-20...+150°C	

Dimensions :



Diameter (mm)	L (mm)	A (mm)	B (mm)	d (mm)	D (mm)
4	50	Φ46	Φ40.5	4	Φ50
6	50	Φ46	Φ40.5	6	Φ50
10	50	Φ46	Φ40.5	10	Φ50
15	100	Φ46	Φ40.5	15	Φ50
20	100	Φ46	Φ40.5	20	Φ50
25	100	Φ46	Φ40.5	25	Φ50
32	120	Φ46	Φ40.5	32	Φ50
40	140	Φ59	Φ53.5	40	Φ64
50	150	Φ73.5	Φ68	50	Φ78
65	170	Φ86	Φ80.5	65	Φ91
80	200	Φ100.5	Φ94	80	Φ106
100	220	Φ113	Φ106	100	Φ119

Mini Turbine Flow Meter



Description :

Mini flow meter is based on turbine theory and designed for measuring micro-flow. This meter has extremely high accuracy especially under the condition of high temperature and high pressure. The Electronic pulse transmitter is also integrated in this min flow meter. It can maintain the 2% accuracy and 0.25% repeatability. Because of smart structure design, no debris can store in the working process and it's clear after work.

- 55*40*47mm dimension
- About 300g
- NSF, CE authentication
- Coffee machine application

Technical Data :

Items	Diameter	Measuring Range	K-Factor
	(mm)	(L/min)	(Ml/imp)
Measuring Range	1.15	0.035-1.6	0.5
	1.3	0.01-1.86	0.6
	1.5	0.045-2.08	0.67
	2	0.085-2.32	1.02
	2.5	0.12-2.4	1.44
	3.7	0.15-3.0	2.28
Pressure	Maximum 20.0 bar		
Temperature	-10°C to 100°C		
Accuracy Level	±2%		
Repeatability Accuracy	±0.25%		
Connection	G 1/4 female thread (ordered to meet need from customers)		
Material	Shell: Green Brass(lead-free brass)		
	Bearing: INO*18/8(1.4305) stainless steel		
	Turbine: PVDF (polyvinylidene fluoride)		
	Magnets: SrFeO ceramics		