

Datasheet

Turbine Flow meter

AI-TGY



Turbine Flow meter AI-TGY

The AI-TGY turbine flowmeter is connected with the converter through the flow sensor, and realizes various functions such as pulse output, current output, and on-site display. The flowmeter has the characteristics of high precision, wide measurement range, long life, simple operation and maintenance, etc. It can be widely used in food, medicine, petrochemical, metallurgy, papermaking and other industries, and is an ideal instrument for flow measurement.

The flowmeter is suitable for liquids that do not corrode stainless steel 304, 2Cr13, corundum (Al₂O₃), cemented carbide, etc., and have no impurities such as fibers and particles.

Application

- Food
- Medicine
- Petrochemical
- Metallurgy,
- Paper making

Features

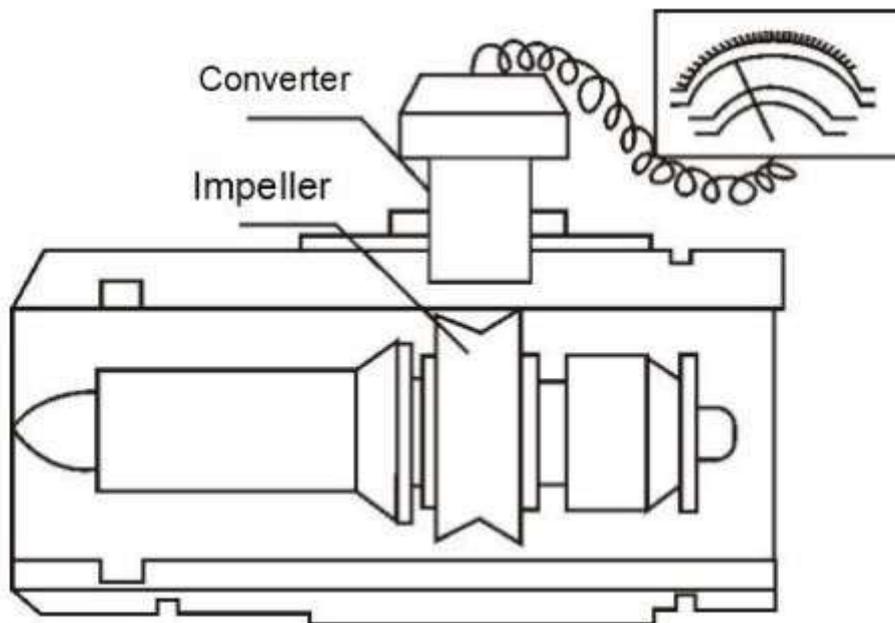
- Multiple functions
- High accuracy,
- Wide measuring range,
- Long life,
- Simple operation and maintenance



Turbine flow meter

Principle

When the measured liquid flows through the flow meter sensor, its internal impeller rotates with the help of liquid kinetic energy. At this time, the impeller blade causes the magnetic resistance in the detection device to change periodically. Therefore, an electric pulse signal proportional to the flow rate is induced at both ends of the detection coil, and is amplified by the preamplifier then sent to the display unit. The single chip microcomputer system in the display unit calculates according to the number of pulses measured and the meter coefficient K of the flow meter, and displays the instantaneous flow rate and the accumulated total amount.



The relationship between the meter coefficient and instantaneous flow, frequency, pulse number, and cumulative total is:

$$K=f/Q \text{ and } K=N/V$$

In the formula:

f—flow signal frequency (Hz)

Q—instantaneous flow rate (m³/s, or /L/s)

N—pulse number

V—Total volume (m³)

K—Meter coefficient(1/m³ or 1/L

Parameter

Parameters	Details
Medium	Liquid (water, beverage, lubricating oil, hydraulic oil, organic liquid, inorganic liquid without fiber and particle impurities, etc.)
Nominal diameter	DN4-DN200mm;
Accuracy	1.0 %(standard),0.5%;
Medium viscosity	$<5 \times 10^{-6} \text{m}^2/\text{s}$ ($>5 \times 10^{-6} \text{m}^2/\text{s}$, the flow meter should be calibrated in real liquid before use)
Medium temperature	-20 °C ~ + 120 °C (stainless steel pipe)
Ambient temperature	-20 °C ~ + 60 °C
Relative humidity	5% ~ 90%
Atmospheric pressure	86kpa ~ 106kPa
Power supply	3.6V, 12V, 24V
Signal output	pulse signal、4~20mA current signal、Modbus
Ingress protection	IP65(IP67, IP68 optional, pulse converter probe IP00)

Wiring

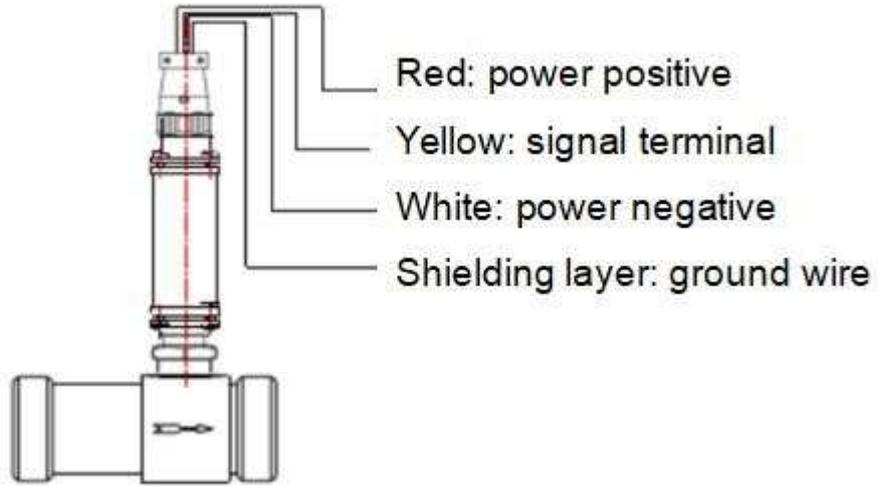


Figure1 Figure 11 Wiring diagram of sensor and display instrument

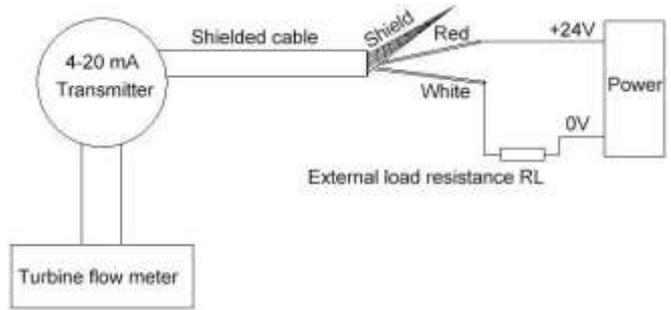
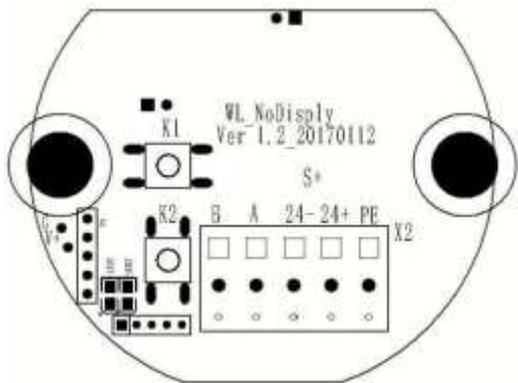


Figure 2 Schematic diagram of external wiring



PE	Ground
24+	24V power supply+
24-	24V power supply
A	485 Communication A
B	485 communication B

Figure 3 Schematic diagram of internal wiring diagram

Instrument Selection and Model Marketing

DN (mm)	Flange connection						Whole meter height	Herssman joint height
	PN (MPa)	L (mm)	D (mm)	K (mm)	d (mm)	N (Number of holes)		
10								
15	2.5	75	95	65	14	4		
20	2.5	85	105	75	14	4		
25	2.5	100	115	85	14	4	290	220
32	2.5	120	140	100	14	4	310	240
40	2.5	140	150	110	18	4	318	248
50	2.5	150	165	125	18	4	327	257
65	1.6	175	185	145	18	4	347	277
80	1.6	200	200	160	18	8	360	290
100	1.6	220	220	180	18	8	388	318
125	1.6	250	250	210	18	8		
150	1.6	300	285	240	22	8	448	378
200	1.6	360	340	295	22	12	490	420

DN (mm)	Threaded connection					Clamp connection		
	PN (MPa)	L (mm)	G (External thread)	Whole meter height	Herssman joint high	PN (MPa)	Clamp connection length (mm)	Clamp outer diameter (mm)
4	6.3	225	G1/2	244	174	1.6	50	50.5
6	6.3	225	G1/2	244	174	1.6	50	50.5
8	6.3	345	G1/2	244	174	1.6	50	50.5
10	6.3	345	G1/2	244	174	1.6	50	50.5
15	6.3	75	G1	244	174	1.6	75	50.5
20	6.3	85	G1	249	179	1.6	85	50.5
25	6.3	100	G1 1/4	258	188	1.6	100	50.5
32	2.5	120	G1 1/2	265	195	1.6	120	50.5
40	2.5	140	G2	273	203	1.6	140	64
50	2.5	150	G2 1/2			1.6	150	77
65	1.6	175	G3			1.6	175	91
80	1.6	200	G3 1/2			1.6	200	106
100	1.6	220	G4 1/2			1.6	220	119
125								
150								
200								

Ordering Code

AI-TGY-I1-DN40-F1-J5-P2-B1-MQ1-IP2													Description	
AI-TGY	-	-	-	-	-	-	-	-	-	-	-	-	-	
	I1													Threaded
Installation	I2													Flange
	I3													Clamp
Diameter	DNXX													DN4 - DN200
			F1											No display: Herssman joint pulse output (24 VDC power supply)
			F2											No display: Herssman joint 4-20mA output (24 VDC power supply)
			F3											No display:pulse output (24 VDC power supply)
			F4											No display:4-20mA output (24 VDC power supply)
Converter			F5											LCD display: No output (3.6V lithium battery supply)
			F6											LCD display: pulse output (24 VDC power supply)
			F7											LCD display: 4-20mA output (24 VDC power supply)
			F8											LCD display: pulse output(3.6V lithium battery and 24 VDC power supply)
			F8											LCD display: 4-20mA output(3.6V lithium battery and 24 VDC power supply)
Accuracy			J6											1% (standard)
			J5											0.5%
				P2										1.0MPa
				P3										1.6MPa
Nominal pressure				P4										2.5MPa
				P6										6.3MPa
				PZ										Others
Pipe material					B1									304 stainless steel
					B2									316 stainless steel
Impeller material						MQ1								2Cr13 impeller
						MQ2								Duplex Steel Impeller
Ingress protection							IP0							IP00(Pulse Converter Probe IP00)

	IP1						IP65
	IP2						IP67
	IP3						IP68



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