

Product overview

The FTS turbine flowmeter is a velocity type flow measurement instrument. The fluid flows through the sensor's enclosure, and the fluid's impulsion gives the blade a driving torque due to a certain angle between the impeller's blade and the flow direction. After overcoming the friction moment and hydraulic resistance, the blade will rotate. Upon achieving the moment equilibrium, the rotate speed will become stable. Under a certain condition, the rotate speed is proportional to the flow rate. The blade is located in the signal detector's (comprised of the permanent magnetic steel and the coil) magnetic field due to the magnetic permeability of the blade. The rotating blade cuts the magnetic line of force and periodically changes the magnetic flux of the coil so that the electrical pulse is induced at both ends of the coil. The signal is amplified and shaped by an amplifier to form a continuous rectangle impulse wave with a certain amplitude which can be far transmitted to the display instrument to show the instantaneous flow rate or total flow of the fluid. Within a certain range of flow, the pulse frequency f is proportional to the instantaneous flow rate Q of the fluid flowing through the sensor. It can be used to measure the volume flow rate of the liquid which is filled with closed tubes and continuously flows. The advanced technology and processing technology is used and the product performance is stable with high precision and multi-structure design, facilitating the user selection. The product is widely used for the industries, such as petroleum, chemical engineering, metallurgy, thermal power generation, lithium battery new energy industry, scientific research, paper making, heating steam and food.

Product features

- Intelligent flow display with nonlinear precision compensation function.
- The pressure loss is small and the impeller has the anti-corrosion function;
- It's corrosion resistant and applicable to acid and alkali solution;
- The lower limit flow rate is low and measurement range is wide;
- Wide range, medium/large caliber-1:20 and small caliber-1:10;
- The accuracy of modified formula exceeds $\pm 0.02\%$;
- The flow sensor has many connection methods with easy installation and use;
- The amplifier separated from the sensor (separation distance: 15m) can be realized;
- Strong anti-magnetic interference and vibration ability, reliable performance and long life;
- Turbine flowmeter temperature range: $-20 \sim 100^{\circ}\text{C}$, high temperature type: $-20 \sim 150^{\circ}\text{C}$;
- The advanced ultra-low power single-chip microcomputer technology is used, and the machine function is strong with low power dissipation and excellent performance;
- The EEPROM is used for protection against power failure of accumulated flow and instrument coefficient and the protection time exceeds 10 years;
- The high performance MCU CPU is used, and the data collection and processing display output and cumulative flow and instantaneous flow display at the same time are realized;
- It can be made into insertion type and applicable to large caliber measurement with small pressure loss, low price, continuous flow out and convenient installation and maintenance;
- The measuring detector is of wear resistant type and anti-corrosion type with wide product application scope and good stability;
- The turbine sensor applies to the measurement of liquid with low viscosity and is characterized by its accuracy reaching to (Level 0.2~1.0) furthest and bearing the large working pressure;
- The diphasic stainless steel is used for the impeller, and it's necessary to carry out further prevention. The graphite, modified tetrafluoroethylene, tungsten carbide and gem are used for the bearing;
- Intelligent circuit design, powerful function and display of instantaneous flow rate and accumulated flow rate.
- Low power consumption, working by own battery, and remote output: $4 \sim 20\text{mA}$ pulse with Hart protocol.



Product parameters

Measuring range:	0.01-1000m ³ /h
Applicable medium	Clean liquid without impurities (water, aqueous solution and low viscosity oil)
Nominal pipe diameter	DN4-250mm (flange and clamping) DN200-600mm (plug-in type)
Accuracy grade	±0.2%FS, ±0.5%FS, ±1.0%FS and ±1.5%FS
Repeatability error	±0.5% of measured value
Linearity	1%
Display	Widescreen LCD display, and parameters and variables set by the key on the panel Display of instantaneous flow rate, cumulative total flow rate, percentage and frequency l/min, m ³ /h and Hz
Resolution ratio	0.1 l/min and 0.005 m ³ /h
Operating temperature	-35-60°C (standard type) -20-180°C (high temperature type) -40-80°C (explosion-proof type)
Allowing the viscosity	0.8-30cm ² /s
Operating pressure	1.6MPa, 2.5MPa, 4.0MPa and customization under the special situation
Enclosure material	Stainless steel and anodised aluminium
Turbine material	Stainless steel 316L and plastic
Gauge head material	Aluminum alloy
Bearing	Tungsten carbide bearing and ruby bearing (optional)
Straight pipeline requirements	Inlet: 10*DN Outlet: 5*DN
Signal output:	4 ~ 20mA, pulse, RS485, MODBUS protocol and HART output
Power supply	220V AC and 24V DC
Electrical connection	Intelligent: M20*1.5 terminal connection Digital display type: Aviation plug connection Ordinary type: Direct outgoing line
Connection type	National standard flange and internal and external thread
Protection grade	IP65 (Optional IP68)
Ambient temperature	-20°C...80°C
Relative humidity	5% ~ 95%
Explosion-proof sign	Flame-proof ExdIICT4
Consumed power	< 20W

Product model selection

FTS	Turbine flowmeter									
	Nominal diameter *** (100 indicates nominal diameter: DN100)									
		Structure form Z Intelligent integration F Split type								
			Sensor technology W Normal L Wearproof B Corrosion resistant							
			Nominal pressure 1 1.6MPa 2 2.5MPa 3 4.0MPa 4 6.3MPa 5 16MPa 6 25MPa 7 40MPa							
			Connection type G Insertion type R Thread seal thread type F Flange connection type J Clamping type K Quick-release connection type							
			Precision error A 0.2 B 0.5 C 1							
			Explosion proofing D Non-explosion-proof type E Explosion-proof type							
			Signal output: 1 Pulse 2 4~20Ma 3 With Hart protocol							
			Integrated power supply mode 1 Internal battery power supply 2 Battery and 24VDC double selection power supply 3 External 24VDC power supply							
FTS-										