

## YK-LB Target Plate Flow Meter

### Briefing

YK-LB intelligent target Flowmeter is based on the traditional isolating diaphragm target Flowmeter, and applies a new strain sensor to the target Flowmeter. At the same time, it adopts the latest digital technology and microelectronic technology. The detected sensor signal is processed into the output of the 4-20mA signal which is proportional to the flow rate, and the instantaneous flow rate and the cumulative flow rate are displayed simultaneously through the dual rows of large liquid crystal. The traditional target Flowmeter has a remarkable improvement in structure and performance, and the intelligent strain target Flowmeter is applying for national patent.



### Feature

High temperature, high pressure: from -80 °C to 200 °C, pressure up to 10 Mpa.

Suitable for various caliber:  $\Phi$  15-  $\Phi$  1500.

Suitable for liquid, gas and steam measurement.

Low velocity medium can be measured, the velocity is larger than 0.1m/s (Reynolds coefficient is more than 1000).

Medium with high measurable viscosity and sediment.

Accurate measurement, high accuracy, up to 0.2% (special order).

The pressure loss is small, only about 1 / 2 P of the standard orifice plate, and the large diameter is obviously reduced.

The software is powerful and can be calibrated online or dry.

Two-line large liquid crystal display, can display instantaneous flow, cumulative flow, excess range and battery power display.

According to the actual need to change the force elements to change the flow range.

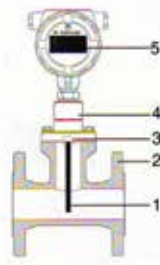
Easy to install and maintain.

Various mounting modes, optional clamping, flange, threaded, plug-in, removable, sanitary, integral or sub-type.

### Working Principle

#### 1. Structure:

YKLB type digital display target Flowmeter is mainly composed of measuring tube (shell), force element, induction element (force sensor, pressure sensor, temperature sensor), transition component (increase or decrease according to temperature and pressure), integral display and output part, Its structure is



1, force element 2, measuring tube (shell) 3, force sensing distant element (including temperature, pressure sensing element)  
4, transition component 5, integral, display, output

2. How it works:

When the medium flows in the measuring tube, the pressure difference caused by its own kinetic energy and the blocking part produces the force of a pair of force elements, the magnitude of the force is proportional to the square of the velocity of the medium. The mathematical expression of the force is as follows:

$$F = CD \rho U^2 / 2$$

In the formula: the force acting on the F-force element

CD-object resistance coefficient

Density of medium under  $\rho$  -working condition

Average Velocity of U-medium in measuring Tube

Measurement of Axial projection area of Tube by A- Force element

Parameter

Medium	Liquid Gas Steam			
Diameter	Pipe Type 15~300mm	Wafer Clamp 15~300mm	Insertion 150~1500mm	Thread 15~150mm
Rated Pressure	1.6~10MPa	1.6~10MPa	1.6~10MPa	1~40MPa
Medium Temperature	-40°C ~ +200°C More than 100°C Add Heat Sink , More Than +200°C Lower than -30°C Add Cover Instrument)			
Accuracy	±0.5% ~ ±2.5%FS Standard : ±1.0%FS			
Repeatability	0.05%~0.08%			
Power Supply	Built in Lithium Battery ( 3.6V ) Or External 24VDC Two Wir4-20mA ( 12VDC-32VDC )			
Signal Output	Field Display ; 4~20mA ; Pulse ; 1~5V ; RS232/RS485(Optional) ; HART(Optional)			
Cable Joint	Explosion Proof 1/2NPT , Other M20×1.5			
Measure Tube Material	Carbon Steel ; SS304 ; SS316L			
Shell Material	Cast Aluminum			
Explosion Proof Grade	ExiallCT <sub>4</sub> ExdIIBT <sub>4</sub>			
Protective Grade	IP65			

Model Selection

Code								Description
YK-LB-								
Mounted	1							Flange
	2							Wafer Clamp
	3							Insertion
	4							Thread
	5							Sanitary(tri-clamp)
	6							Online Install
Medium		1						Gas
		2						Liquid
		3						Steam
Diameter			0					DN15
			1					DN20
			2					DN25
			3					DN32
			4					DN40
			5					DN50
			6					DN65
			...					...
			200					DN2000
Type				Z				Integrated
				F				Split
Converter					B			Battery Power,Filed Display
					C			24VDC Power,Filed Display,4-20mA
					C1			24VDC Power,Filed Display,4-20mA,Modbus
					C2			24VDC Power,Filed Display,4-20mA,Hart
					D1			Temperature or Pressure Compensation
					D2			Temperature and Pressure Compensation
Explosion-Proof						N		No
						E		Explosion Proof
Pressure							N	Standard ( 1.6Mpa )
							H ( x )	High Pressure ( Customized )
Temperature							N	<100°C
							H1	<200°C , with heat sink
							H2	<350°C , with heat sink and cover

## Flow Range

### 1. Water Flow Range

Diameter DN(mm)	Measure Range(m <sup>3</sup> /h)	Plate:Diameter	Pressure Loss(kPa)
15	0.1 ~ 3	0.8 ~ 0.5	75.53
20	0.17 ~ 5	0.8 ~ 0.5	55.12
25	0.3 ~ 9	0.8 ~ 0.4	34.45
32	0.5 ~ 14	0.8 ~ 0.3	24.12
40	1.0 ~ 24	0.8 ~ 0.3	17.23
50	1.5 ~ 40	0.8 ~ 0.3	6.89
65	2.5 ~ 60	0.7 ~ 0.35	5.51
80	3.5 ~ 90	0.7 ~ 0.35	4.31
100	5 ~ 140	0.7 ~ 0.3	2.76
125	6 ~ 200	0.7 ~ 0.3	2.07
150	10 ~ 300	0.6 ~ 0.25	1.38
200	18 ~ 560	0.6 ~ 0.25	0.89
250	25 ~ 800	0.5 ~ 0.25	0.56
300	40 ~ 1200	0.5 ~ 0.2	0.35
350	50 ~ 1500	0.5 ~ 0.2	0.1
400	65 ~ 2000	0.5 ~ 0.2	0.07
450	90 ~ 2600	0.4 ~ 0.2	0.06
500	110 ~ 3300	0.4 ~ 0.2	0.05
550	140 ~ 4100	0.35 ~ 0.2	0.04
600	170 ~ 5000	0.3 ~ 0.15	0.03
700	230 ~ 6800	0.3 ~ 0.15	0.011
800	300 ~ 9000	0.3 ~ 0.15	0.0083
900	370 ~ 11000	0.3 ~ 0.15	0.0062
1000	470 ~ 14000	0.2 ~ 0.1	0.0055
1100	560 ~ 16000	0.2 ~ 0.1	0.0041
1200	670 ~ 20000	0.2 ~ 0.1	0.0034
1300	780 ~ 23000	0.2 ~ 0.1	0.0028
1400	900 ~ 27000	0.2 ~ 0.1	0.0018
1500	1050 ~ 31000	0.2 ~ 0.1	0.0016
1600	1200 ~ 32500	0.2 ~ 0.1	0.0014
1700	1350 ~ 36500	0.2 ~ 0.1	0.0012
1800	1510 ~ 40800	0.2 ~ 0.1	0.0011
1900	1680 ~ 45500	0.2 ~ 0.1	0.001
2000	1850 ~ 50000	0.2 ~ 0.1	0.0009
2100	1980 ~ 55800	0.2 ~ 0.1	0.0008

注：实际压降 = (实际流量/满量程流量) 2 × 满量程最大压降。