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Киргизия (996)312-96-26-47

Россия (495)268-04-70

Казахстан (772)734-952-31

<https://yinuo.nt-rt.ru/> || yno@nt-rt.ru

Triangle Series



LZYN series mass flowmeter is designed according to the coriolis principle .as a fairly advanced kind of flow measurement...

Description

- Introduction
- Specification
- Function
- Outline Dimension
- Model Selection

1. General

LZYN Series Mass Flowmeter (hereafter we call LZYN) is designed according to the Coriolis Principle. It can be widely used for the process detecting and custody transfer/fiscal unit in many industries such as petroleum, petrochemical industry, pharmacy, paper making, food and energy, and so on. As a fairly advanced kind of flow measurement instrument, it has been paid attention by the circle of measurement and accepted by many customers home and abroad.

2. Principle

LZYN is designed according to the principle of Coriolis force. Under the alternating current effect, the magnet and coil installed on the measuring tube will make two parallel measuring tubes vibrate according to some fixed frequency. Once there is flow passing through the pipes, Coriolis force will give rise to deflection (phase shift) on the vibration of two pipes and the deflection of vibration is directly proportional to the mass flow of fluid. Pick up them and the mass flowrate could be calculated.

The vibration frequency of measuring tube is determined by the total mass of measuring tube and inner fluid. When the fluid density changes, the vibration frequency of measuring tube will be also changing, as a result, the fluid density can be calculated.

The temperature transducer installed in the pipeline can pick up the fluid temperature on time under the coordination of measuring circuit.

3. Transmitter

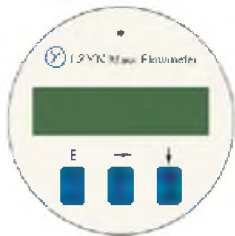
G Type Coriolis Transmitter & D Type Coriolis Transmitter

G type coriolis transmitter is an analog transmitter, which adopts traditional method to do the sampling and signal analysing.

D type coriolis transmitter utilizes DSP technology which greatly improves the methods of sampling, signal filtering, and signal analyzing for better performance on accuracy and turn down. It especially enhances the accuracy under low flow rate. It can be used for gas medium.

Difference between G Type Analog transmitter and D Type DSP transmitter

Difference between G Type Analog transmitter and D Type DSP transmitter

Comparison	G Type Analog transmitter	D Type DSP transmitter
Principle	1. Traditional sampling, process and reaction; Low turndown.	1. Higher sampling; 2. Shorter response time and quicker reaction; 3. Digital filtering. 4. Higher accuracy and bigger turndown ratio
Display	LCD	OLED
Screen	Small	Big and leave space for future updating
Display Panel		
Model Code	G	D

In conclusion, DSP transmitter is much advanced than Analog transmitter from principle, design and application. However, to keep the consistency on operation, we did not change menus until now.

Main Technical Specification

Table 1

DN (mm)	1/2"~1"			
Structure	Integrate Type (-50~+125)℃ Separate Type (-50~+200)℃ Non-explosion-proof (-50~+300)℃.			
Sensor	Triangle Series			
Transmitter	Digital Type General Type			
Explosion-proof	General Type Explosion-proof			
Power supply	24V DC 220V AC			
Output Interface	RS485			
Normal Pressure (Mpa)	1.6 2.5 4.0 6.4			
Signal output	Pulse output (4~20)m A			
Accuracy	±0.1% ±0.2% ±0.5%			

DN (mm)	Max. Flow Range (t/h)	Normal Flow Range for Accuracy 0.1% (t/h)	Normal Flow Range for Accuracy 0.2% & 0.5% (t/h)	Stability of Zero Point (t/h)
DN15	0.04~2.00	0.40~2.00	0.20~2.00	0.0002
DN25	0.12~6.00	1.20~6.00	0.60~6.00	0.0006

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DN25	0.12~6.00	0.40~6.00	0.30~6.00	0.0006

4.2. Accuracy

0.1%	0.2%	0.5%
$\pm 0.1\% \pm \left(\frac{\text{Stability of Zero Point}}{\text{Instantaneous Flow}} \times 100\% \right)$	$\pm 0.2\% \pm \left(\frac{\text{Stability of Zero Point}}{\text{Instantaneous Flow}} \times 100\% \right)$	$\pm 0.5\% \pm \left(\frac{\text{Stability of Zero Point}}{\text{Instantaneous Flow}} \times 100\% \right)$
Accuracy is calculated based on the water measurement under the condition of +20℃~25℃ and 0.1MPa~0.2MPa.		

4.3. Repeatability

Accuracy	0.1%	0.2%	0.5%
Repeatability	±0.05%	±0.1%	±0.25%
Accuracy is calculated based on the water measurement under the condition of +20℃~25℃ and 0.1MPa~0.2MPa.			

4.4. Measurement of Density

Density Range	(0.2~2.0) g/cm ³
Basic Error	±0.002g/cm ³ (Affected by the sensor)
Repeatability	0.001g/cm ³

4.5. Measurement of Temperature

Temperature Range	(-50~+125) ℃	Integrated Type
	(-50~+200) ℃	Separate Type
	(-50~+350) ℃	High Temperature Separate Type
Basic Error	≤ ±1.0℃	

5.1. Circuit Loop Output

4-20 mA current Output can be configured to denote the mass flow or volume flow.

Output Range	4~20mA
Resolving Power	0.00024mA
Basic Error	0.2% F.S
Temperature Impact	±0.005% F.S/℃
External resistor should be 250~600Ω	

5.2 Frequency Output

Active Frequency Output can be configured to denote the mass flow or volume flow.

Output Range	0~10kHz
Resolving Power	0.152Hz
Basic Error	±0.075%
Temperature Impact	±0.001% F.S/℃
Max. capability of output range is 12kHz	

Low Flow Cutoff
When the flow value measured is lower than the value of Low Flow Cutoff, the LZYN will output zero flow and the totaliser will stop to accumulate. The value of Low Flow Cutoff is usually sets to be 1% of the maximum flowrate.

5.4 Ambient Limitation

5.4.1 Ambient vibration

Table10

Frequency Range	(10~2000) Hz
Acceleration amplitude value	2g
Circulation time	50 times

5.4.2 Ambient temperature

Table11

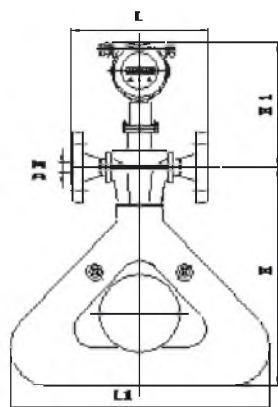
Working Temperature	(-20~+55) ℃
Storage Temperature	(-20~+70) ℃

5.4.3 Ambient humidity

Working Humidity	<90%	+25℃ No condensation
Storage Humidity	<95%	

5.4.4 Enclosure Grade: IP 65(IP 68 could be custom made)

Outline Dimension (see drawings and table)



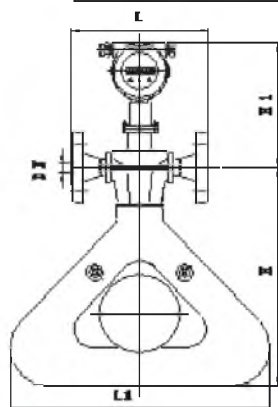
DN (15~25)

Model LZYN	DN	L	L1	H	H1
015	15	180	350	290	260
020	20	200	450	400	290
025	25	200	450	400	390

7. Model Selection

Table 15

Model		Explosion-proof Grade
Integrate Type	LZYN-015~025	Exdib IIC T4~T6 (IIC just includes H ₂)
Separate Type	LZYN-015~025	Ex ib IIC T3~T6 (IIC just includes H ₂)



DN (15~25)

Model LZYN	DN	L	L1	H	H1
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