FXH Vortex flow sensor

Temperature and flow rate
Integrated sensor

Chinese + graphical interface
Foolproof menu

Self-luminescence
Display clearly and sharply

Digital communication
Integrated analog quantity

Intelligent temperature display
Alarm contact output

Intelligent display of traffic
Alarm contact output

High precision
Good stability

Resistant to scaling
Corrosion-resistant

Full potting design
Fully waterproof housing

High pressure resistance

The mobile phone scanning code installation guidance function
No manual required. Professional services from online engineers

The FXH vortex flow sensor features a simple structure, high accuracy, and convenient installation, maintenance and use. It can monitor the liquid flow and temperature in the pipeline in real time, provide 4-20mA flow and temperature signals or 485 communication, alarm switch output, and use OLED to display the fluid flow and temperature in real time. Realize the integrated monitoring function of temperature and flow in the pipeline. It is widely applied in industries such as new energy, photovoltaic, energy storage, petrochemicals, power, metallurgy, steel mills, and food processing.

High precision

High precision, up to 2% at most,
with good stability and no drift

Flexible design, easy installation, cost saving

The vortex flow sensor has a union design at both ends,
which is convenient for installation and cost-saving

Install side by side

The sensors are installed side by side,
with a compact structure

The enclosure protection grade is IP65

The protection grade of the sensor housing is IP65,
suitable for use in harsh environments

FXH Vortex flow sensor

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Scan code installation
Simple operation
with good stability and no drift

OLED display | Traditional LCD display

OLED display, using organic light-emitting materials Self-luminous, it can display Chinese graphics, with sharp, clear and high resolution

The traditional LCD liquid crystal black-and-white display is very blurry and unclear when viewed from a distance

Traditional digital tube leds cannot display Chinese and graphic information

◀

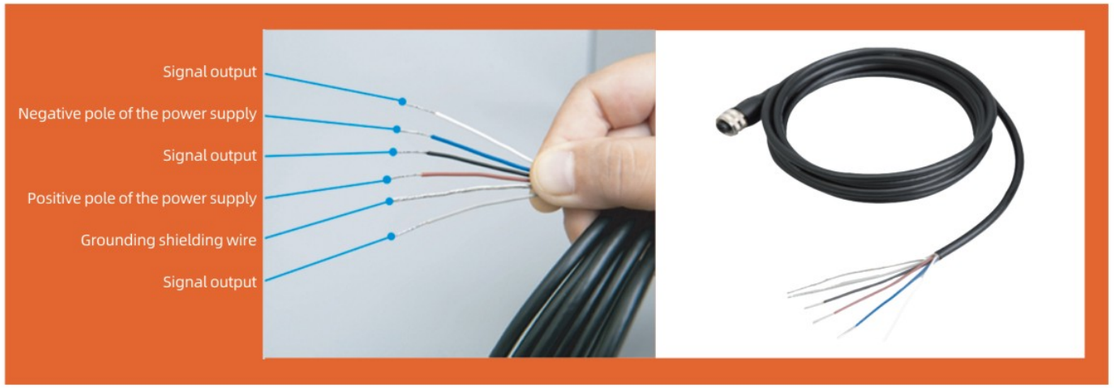
Compared with traditional LED display screens

// Panel Introduction

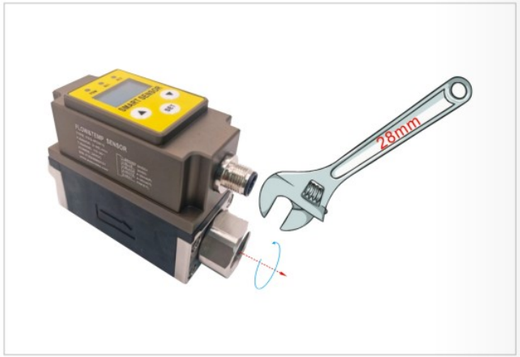
The FXH vortex flow sensor displays the current pipeline flow value or temperature value with 0LED. There are three buttons on the panel for conveniently setting the flow alarm contact and temperature alarm contact.

// Five-core waterproof aviation plug shielding wire

Reduce signal interference



FXH Vortex flow sensor



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Easy to install

The FXH vortex flow sensor features a two-end union design, making it easy to install and disassemble.

▶

High flow rate, stable and reliable

The Karman vortex street principle features a small volume, large flow rate, and stable and reliable performance

Detail display Show quality

304 base, aluminum alloy case

Corrosion-resistant and has good anti-interference performance

Large diameter

There are no mechanical movable parts

Vortex street principle

Large measurement range and high precision

Real photos of the product

Side

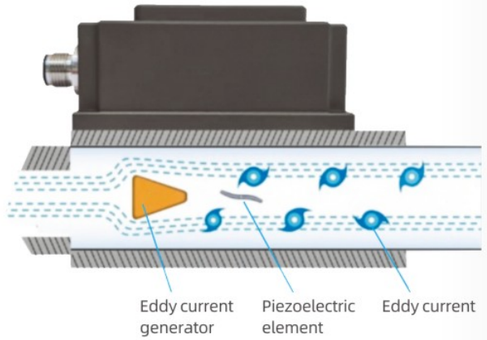
Front

Side

FXH Vortex flow sensor

// Working principle

The FXH vortex flow sensor utilizes a law theoretically proved by THEODORE VON KARMAN in 1912. When there are columnar obstacle vortex generators in the flowing fluid, alternating vortices are generated downstream. The flow velocity of the fluid is proportional to the vortex frequency. The number of eddy current pulses is detected by using piezoelectric elements, and then the flow rate of the fluid is obtained through circuit amplification operation.



// Technical parameters

Flow parameter:

Measurement range: Range comparison table
Accuracy: Grade 1.5, Grade 2

Temperature parameter:

Measurement range: 0 to 100 ℃, -10 to 90℃, customized for customers
Accuracy :≤1℃

Pipe diameter	Flow range	Thread
DN8	1-20 L/min	G1/2"
DN10	2-40 L/min	G1/2"
DN15	3. 5-50 L/min	G1/2"
DN20	5-100 L/min	G3/4"
DN25	9-150 L/min	G1"

Display: 0LED 128X64

Switching time: 0N:≥5s(1-3s) 0FF: >5s(1 to 5s)

Output: Alarm contact, 4-20mA, 485 communication

Alarm contact types :NPN, PNP

Contact capacity: 24V/50mA

Insulation impedance: 50MQ at 100VDC

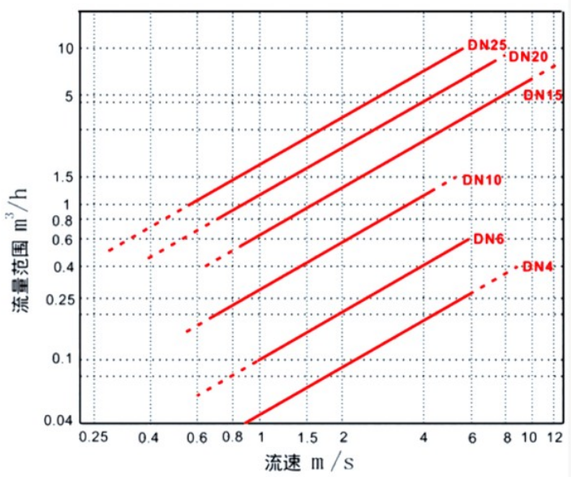
Power consumption: 3W(24VDC)

Interface methods: G1/2, G3/4, G1 internal thread

Shell material: Aluminum alloy

Environmental conditions: -20-85℃, <85%RG

Protection grade: IP67



// Wiring diagram

- Wiring instructions

Users can define the output types of OUT1, OUT2, and OUT3.

There are four options:
1. Flow alarm; 2. Temperature alarm
3. Flow rate: 4-20mA output; 4. Temperature output: 4-20mA

Aviation socket

4-20mA, NPN, PNP output		
Terminal number	Terminal color wire	Terminal description
①	brown	Positive pole of the power supply
③	blue	Negative pole of the power supply
④	black	Switch signal: Flow alarm Switch signal: Temperature alarm Flow rate: 4-20mA output Temperature: 4-20mA output
⑤	Grey	Switch signal: Flow alarm Switch signal: Temperature alarm
②	white	Switch signal: Flow alarm Switch signal: Temperature alarm Flow rate: 4-20mA output Temperature: 4-20mA output

4-20mA, NPN, PNP output wiring diagrams

- PNP type output

OUT1 current 4-20mA, OUT2 alarm PNP output, OUT3 alarm PNP output

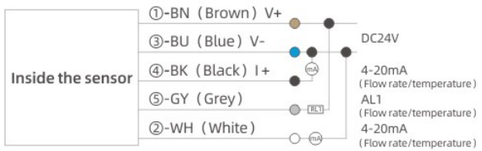
OUT1 current 4-20mA, OUT3 current 4-20mA, OUT2 alarm PNP output

OUT1 alarm PNP output, OUT2 alarm PNP output, OUT3 alarm PNP output

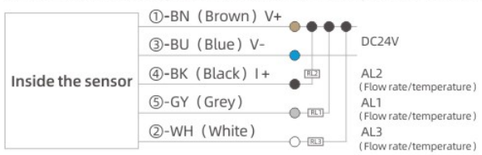
- NPN type output

OUT1 current 4-20mA, OUT2 current NPN, OUT3 alarm NPN output

OUT1 current 4-20mA, OUT3 current NPN, OUT3 alarm NPN output



OUT1 alarm NPN output, OUT2 alarm NPN output, OUT3 alarm NPN output

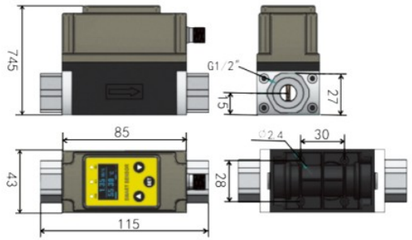


- 485 communication output

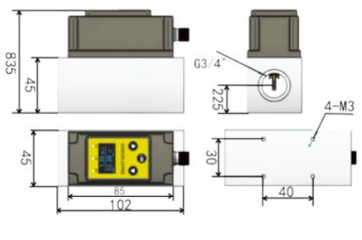
OUT1 alarm PNP output (customizable 4-20mA)

FXH Vortex flow sensor

// Structure diagram



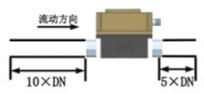
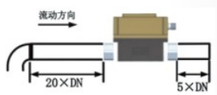
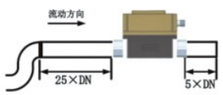
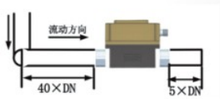
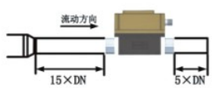
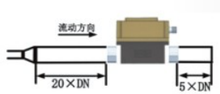
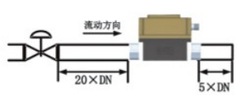
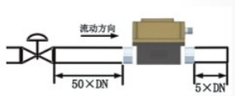
Pipe diameter: DN8-DN15



Pipe diameter: DN20-DN25

// Installation Instructions

To ensure the measurement accuracy of the FXH vortex flow sensor and reduce the impact of turbulence and bubbles on the flow sensor, the following requirements are imposed on the downstream straight pipe section.

Type of flow-blocking component at the inlet section	Installation conditions		Type of flow-blocking component at the inlet section	Installation conditions	
	Entrance section	Exit section		Entrance section	Exit section
General situation			90° elbow		
Two 90° elbows on the same plane			Two 90° elbows on different planes		
Shrink tube			Expansion pipe		
Fully open valve			Half-open valve		

// Installation Precautions

The dimensions shown are the installation lengths of the straight pipe sections to ensure the accuracy requirements. If the length of the straight pipe sections is doubled, the accuracy can be improved.

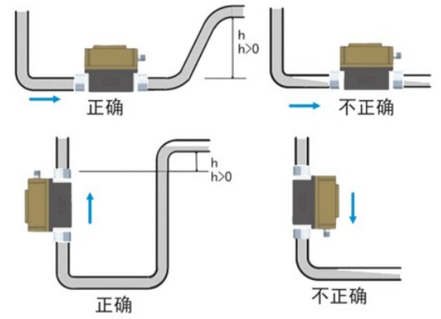
Upstream: The minimum allowable straight pipe section length should be at least 10 times the pipe diameter.

For instance, if the flow sensor has a pipe diameter of DN50, the length of the upstream straight pipe section should be at least 500MM, and the optimal length of the upstream straight pipe section should be 1000MM.

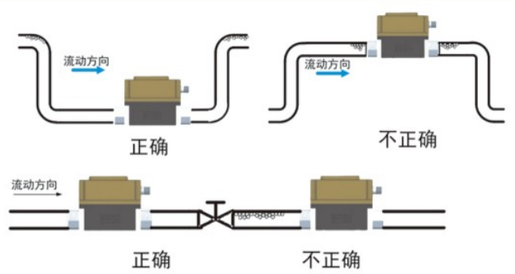
Downstream: The minimum allowable straight pipe section length shall be at least five times the pipe diameter.

For instance, if the flow sensor has a pipe diameter of DN50, the length of the upstream straight pipe section should be at least 250MM, and the optimal length of the downstream straight pipe section should be 500MM.

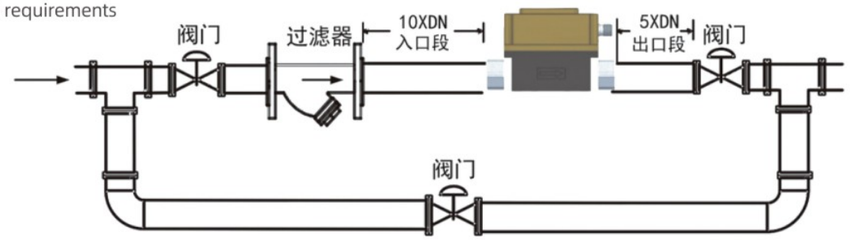
The pipeline must be completely filled with liquid. It is important to keep the pipe completely filled with liquid at all times; otherwise, the flow display will be affected, which may lead to measurement errors



Avoid bubbles. If bubbles enter the measuring tube, the flow display may be affected, which may cause errors.



Installation site and requirements



- The sensor should be installed in a place that is convenient for maintenance, where the pipeline is free from vibration, strong electronic interference and thermal radiation.
- For horizontal installation of sensors, the pipeline should not be tilted (generally within 5°), and for vertical installation of sensors, the verticality difference of the pipeline should also be less than 5°
- At the position where the sensor is to be installed in the newly laid pipeline, first connect a short pipe to replace the sensor. After the pipeline is completely cleaned and it is confirmed that the inside of the pipeline is swept clean, then officially connect the sensor
- If the fluid contains impurities, a filter should be installed on the upstream side of the sensor, and the sediment impurities in the pipeline should be regularly cleaned and discharged. If the measured liquid contains gas, a degasser should be installed on the upstream side of the sensor. The outlets of the filter and the degasser should lead to a safe place.
- When the sensor is installed outdoors, it should be protected from direct sunlight and rain.

FXH Vortex flow sensor

// Selection Instructions

FXH-□ □ □

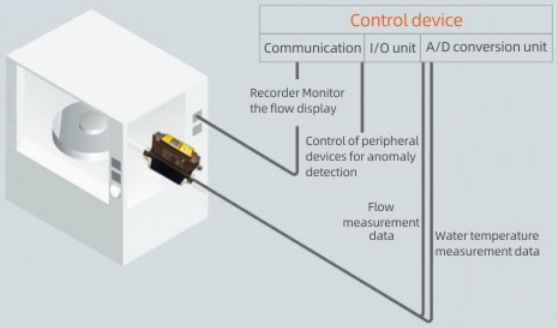
Flow range:
8:1 -20 L/min; 10:2 -40 L/min
15:3.5 -50 L/min; 20:5 -100 L/min
25:9-150 L/min
Flow and temperature alarm methods:
P: Three-wire DC PNP output
N: Three-wire DC NPN output
Communication method:
None: Ignore
R: +R485 communication

Pipe diameter	Flow range	
DN8	1-20 L/min	G1/2"
DN10	2-40 L/min	G1/2"
DN15	3. 5-50 L/min	G1/2"
DN20	5-100 L/min	G3/4"
DN25	9-150 L/min	G1"

// Demonstration of use

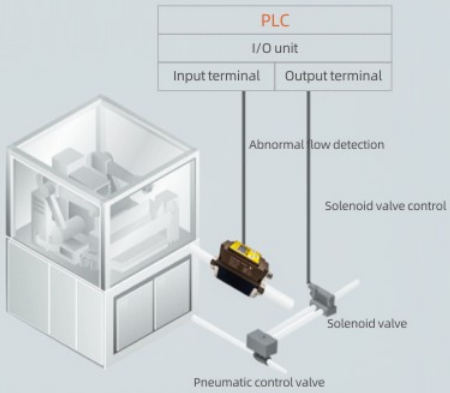
Semiconductor | Semiconductor manufacturing equipment

Cooling and temperature management of conductor manufacturing equipment
Etching, grinding machine, slicing machine, DVD



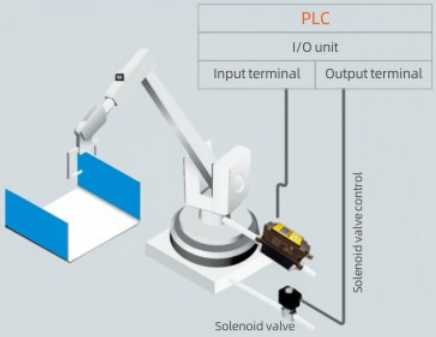
Quenching | High-frequency quenching device

Quantitative management of cooling water



Welding | Semiconductor manufacturing equipment

Abnormal flow detection when the cooling water pipes and chips of the spot welding machine are missing



Processing | Various machine tools

Flow management of water-soluble coolant