

FlameProof Thermal Diffusion Flow Switch (FTDFS)

AdvTech®

Product features

- No mechanical moving parts , Installation and use and maintenance is convenient
- Sensor is low power consumption, high sensitivity and precision
- Because it uses the advanced digital processing technology, so the anti-jamming ability is very strong.
- Due to compact structure and small volume ,Installation and maintenance be very easy
- explosion-proof identifier : ExdIICT6 Gb

Specially Instructions of Installation and Use



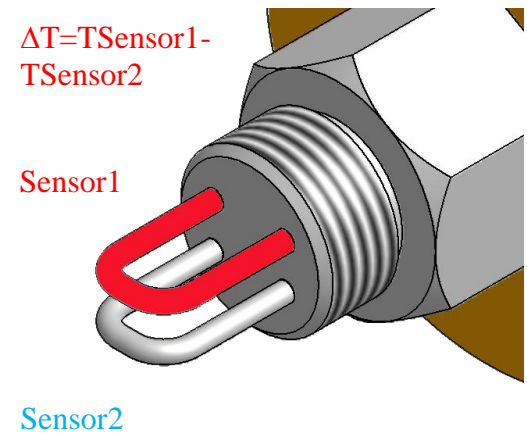
FlameProof Thermal Diffusion Flow Switch

1 Overview

Flow switch is a kind of velocity sensor monitoring equipment. When the velocity has not reached the velocity threshold set, flow switch signal alarm, and the control system alarm or start protection device closed chain key equipment, and in a timely manner to prevent accidents in production. The device is indispensable important equipment to guarantee the production safety and to reduce the loss to the enterprise economic. It has an immeasurable role.

2 The working principle

RFS Thermal Diffusion Flow Switch consists of two Temperature sensitive element (TSE), power supply, signal processor and output of relay or NPN/PNP transistor output. This type of temperature sensor using special semiconductor manufacturing. Physical properties are very close to the two sensors, and at a certain distance from each other, therefore, each other thermal effect can be ignored. The sensor matching tracking the temperature of the medium. The voltage drop is proportional to the temperature on sensor, and accurate work in a wide temperature range. Sensor (Sensor1) will be one of the heated, so that it is higher than that of the medium temperature. Another sensor (Sensor2) and the medium temperature is the same, we call the benchmark sensors, the temperature difference between the two sensors. As a result of the medium flow rate is proportional to the take away heat, therefore, by measuring the voltage difference of the two sensors, known medium flow rate at this time, so as to know the medium flow by calculation.

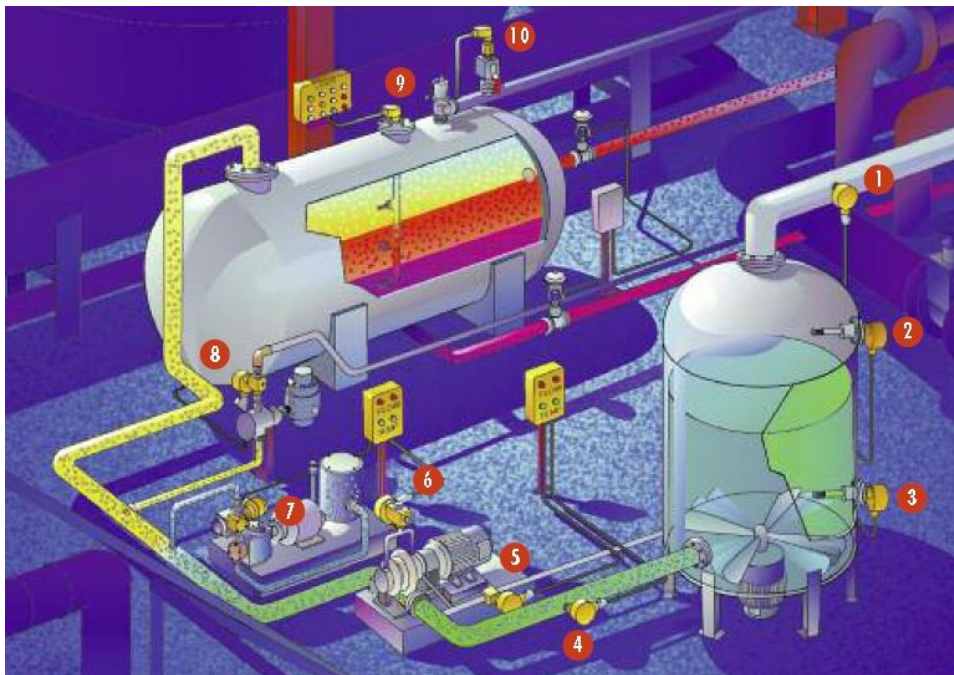


3 Explosion-proof requirements

Conformity with GB3836.1-2000 "explosive gas environment with electrical equipment part 1: general requirements and GB3836.2-2000" explosive gas environment with electrical equipment part 2: flameproof "d" "standards. Explosion-proof marks for: EXdIICT6. By the national anti-explosive detection inspection center, and obtained the flame-proof certification. It is suitable for containing 0, 1 zone and 2 zone, contain type IIA ~ IIC T1 ~ T6 sites with explosive air mixture.

4 The product application

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1. Tank inlet flow detection
2. High level detection
3. Low level detection
4. Low flow pump protection
5. Lube oil flow detection
6. Seal leak flow detection
7. Lube oil bearing flow detection
8. Chemical injection flow monitoring
9. Level and interface detection
10. Off-gas flow detection

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5 Specially Data

Relay output

Operating Voltage : DC 24V

Operating Current : $\leq 60\text{mA}$

Output : Relay (SPDT/DPDT)

Contact Rating : Voltage : $\leq \text{AC } 220\text{V}$

Current : 1A, 5A, 10A

Medium temperature range : $- 50^{\circ}\text{C} - +100^{\circ}\text{C}$

Environment temperature range : $- 20^{\circ}\text{C} - +80^{\circ}\text{C}$

Flow control points set up (Adjustable) : 0.03 - 10m/s(The typical medium : Water)

Switch time Typical 3 Seconds (1 - 12s)

Open Time Typical 3s (1 - 12s)

Close Time Typical 3s (1 - 12s)

Temperature response time : 10s

The temperature gradient: $250^{\circ}\text{C}/\text{min}$

Pressure Rating: 10.0MPa

LED Indication

Red light, The power supply is normal; Red out, The power supply does not work.

Green out, Flow Velocity is lower than the set value; Green light, Flow Velocity is equal to or greater than the set value

The probe material Stainless steel 316l or The user to specify

The shell material Aluminum alloy

G1/2" The Screw Thread Torque 100Nm.

We also can manufacture according to user requirements.

Explosion-proof identify ExdIICT6 Gb

Waterproof Class: IP65

Choose model reference

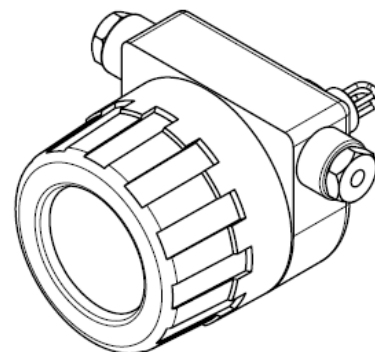
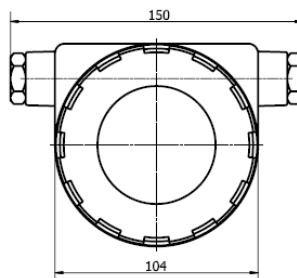
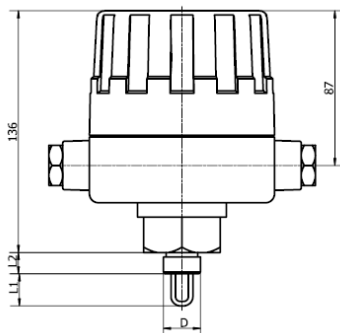
RFS - D - d010Ex Input Power: DC24V Output Rating: AC 220V 1A

RFS - D - d020Ex Input Power: DC24V Output Rating: AC 220V 5A

RFS - D - d100Ex Input Power: DC24V Output Rating: AC 220V 10A

Accessories Lead device : Including: threading gland nut, rubber seal and plug

We can also manufacture process connection and the length of the probe, according to user requirements(Threaded or flanged).



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6 The installation guide

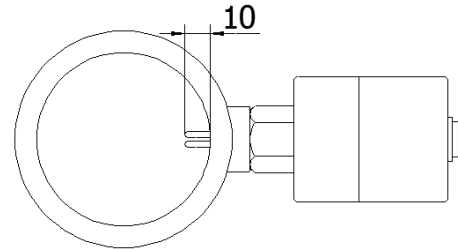
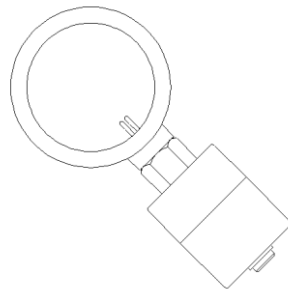
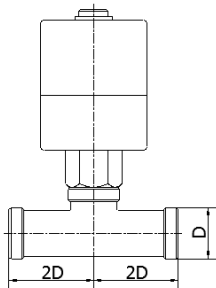
6.1 Install on the pipeline

Flow switch and the medium of the pipe thread connection form of G1/2 "(also can according to user requirements shall be separately provided other threaded connections), can be directly inserted into the pipe (pipe diameter D is greater than 1"), also can be connected through a three-way pipe (pipe diameter less than or equal to 1 D "), replacement fast, convenient and simple.

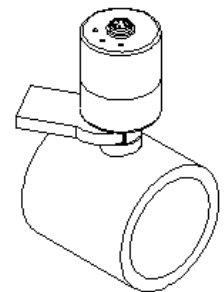
In order to avoid the error signals generated in the air-pocket, please don't will flow switch is installed near the bend or in a pipe head (minimum distance > 2 times the pipe diameter).

If flow switch must be installed horizontally and the pipe is not fully filled with medium, flow switch should be installed as shown.

If the flow switch must be installed horizontally, and pipeline may exist in the sediment, it should be installed at the side of the pipe.



- When installation, must guarantee part probe into the medium depth of 10 mm.
- When installation, do not force rotating flow switch in the middle of the site. Please use the right tool spin hexagon place for installation, otherwise it will damage the flow switch.



6.1 Wiring

6.1.1 SPDT The output cable plug terminal function

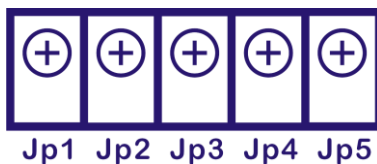
Connector No.	JP1	JP2	JP3	JP4	JP5
Cable function	DC 24V+	DC 24V-	NO.	NC.	COM.

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6.1.2 DPDT The output cable plug terminal function

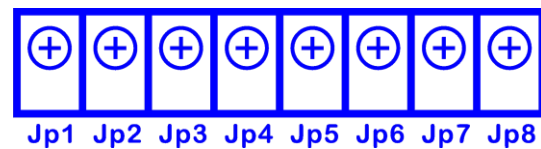
Connector No.	JP1	JP2	JP3	JP4	JP5
Cable function	DC 24V+	DC 24V-	NC1	COM1	N01
Connector No.			JP6	JP7	JP8
Cable function			NC2	COM2	N02

6.1.3 SPDT The wiring diagram



SPDT The wiring diagram

6.1.4 DPDT The wiring diagram



DPDT The wiring diagram

7 Inspection, Operation and Control point set of Flow Switch

7.1 Indicator light

Red LED is the flow switch power indicator. The green LED is the flow indicator light, which indicates that the flow of the medium is equal to or greater than the set value. The potentiometer knob is the flow control point setting knob.

Control flow rate of flow switch: 0.01-10.0 m/s.

7.2 Inspection of Flow Switch

The flow switch should not be installed on the pipe.

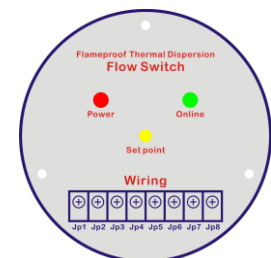
7.2.1 Take the cable under section 6.2., then turn on the power. At this moment, the red and green light on the flow switch is on. About 1-2 seconds later, the green light should go out and the red light will be on.

7.2.2 Check the output state: do not shut off the power, check JP3, JP4, JP5, JP6, JP7, JP8 cable state. Green light goes out after when JP3 line, JP5, JP6, JP8 is in open state, JP4, JP5, JP7, JP8 line in the closed state.

7.3 The operation of the flow switch

7.3.1 Flow switch after the plug is in working condition.

7.3.2 Medium velocity in pipe is higher than the set value, the green light, and JP3, JP5, JP6, JP8 cables in conduction, JP4, JP5, JP7, JP8 line in the disconnected state.



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7.3.3 When the media in the pipeline flow rate setting has not been achieved, the green is off, and JP3, JP5, JP6, JP8 cable is disconnected, JP4, JP5, JP7, JP8 line in the conduction state.

7.4 Set the velocity control point

Will check the normal flow switch is installed on the pipeline. Refer to the picture on the right top of the vertical products. Set carefully according to the following steps:

- 7.4.1 With the aid of other flow meter, you would adjust the media flow ratio in the pipeline to the value need to control, then remain stability in 1 to 2 minutes ;
- 7.4.2 If the flow indicator is on, can be a knob counterclockwise to the dawn, clockwise rotate slowly to just bright again. At this point, when a little fine-tuning small medium flow, the green light immediately go out.
- 7.4.3 If the flow indicator is off, can be a knob clockwise to the bright, counterclockwise rotate slowly to just dawn again. At this point, when a little fine-tuning big medium flow, the green light immediately bright.
- 7.4.4 Flow switch in setting, time that on or off state change is: 1 to 15 seconds.

You must be very carefully. Control point setting will depend on the degree of medium flow stability and temperature variation, you must need to many times the adjustment very patiently.

8 Faults and Processing

numerical order	The fault phenomenon	Possible reasons for	To deal with	Note
1	Red light is off	<ul style="list-style-type: none"> 1、 Wiring is not correct 2、 Power module damaged 	<ul style="list-style-type: none"> Checking wiring Checking the power supply 	
2	Green light is off	<ul style="list-style-type: none"> 1、 Velocity have not reached setting value 2、 The probe is dirt 3、 Light is mechanical damage 4、 Abnormal power supply, circuit board damaged 	<ul style="list-style-type: none"> Improve the flow rate or lower value Clean the probe on dirt Contact technical support Contact technical support 	Probe dirt can be used as a solvent cleaning on alcohol, acetone etc. Metallographic sandpaper to remove if necessary.
3	Light is all normal display, but the output errors	<ul style="list-style-type: none"> 1、 Connection is not correct 2、 Cable to disconnect 3、 Relay is damaged 	<ul style="list-style-type: none"> Check the plug connection Check whether the cable is disconnected. contact support 	
4	Adjusting the potentiometer, flow switch is not responding	<ul style="list-style-type: none"> 1、 Improper use tools 2、 Potentiometer mechanical damage 	<ul style="list-style-type: none"> Replace with the right tools Contact technical support 	

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- 9 Sales service and technical support
24 hours technical support hotline: 027-88861346
Website: <http://www.hmy-advtech.com>

Thank you very much for using AdvTech ® RFS series flow switch! Before using this product, please be sure to read the instructions carefully. Thank you,again!

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