YF - B6 Flow Sensor Technical Document

Product Features

1. This product has a lightweight and handy appearance, with a small size, making it easy to install.
2. All raw materials comply with the ROSH testing standards.

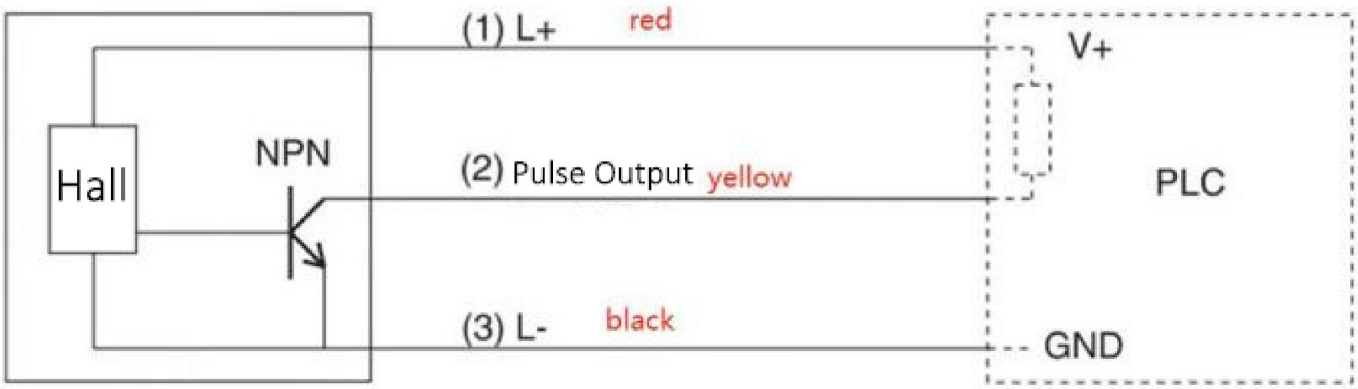
I. Product Introduction

The water flow sensor is primarily composed of a metal valve body, a water flow rotor assembly, and a Hall sensor. Installed at the water inlet of a water heater, it detects the inlet water flow. When water passes through the water flow rotor assembly, the magnetic rotor spins, and its rotational speed varies with the flow rate. The Hall sensor then outputs corresponding pulse signals, which are fed back to the controller. The controller determines the magnitude of the water flow and adjusts accordingly.

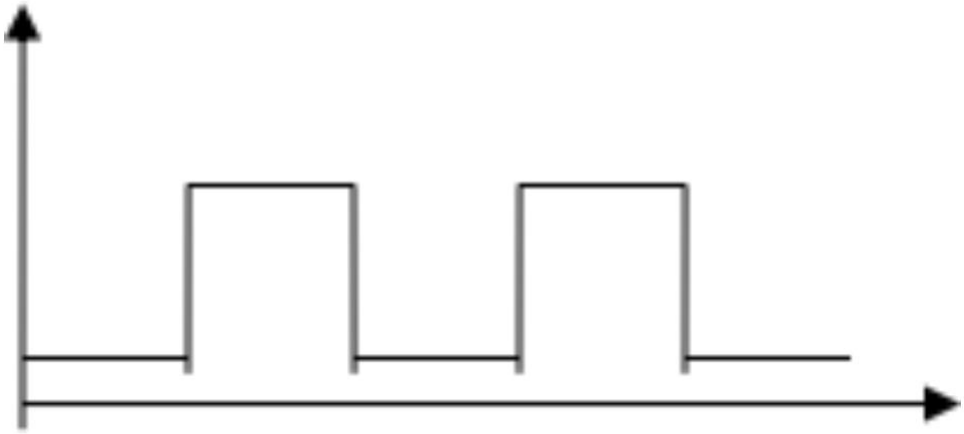
II. Usage Precautions

- Violent impacts and corrosion by chemical substances are strictly prohibited.
- Throwing or colliding with the sensor is strictly forbidden.
- It can be installed either horizontally or vertically.
- The temperature of the medium should not exceed 100°C.

III. Lead Wire Configuration：

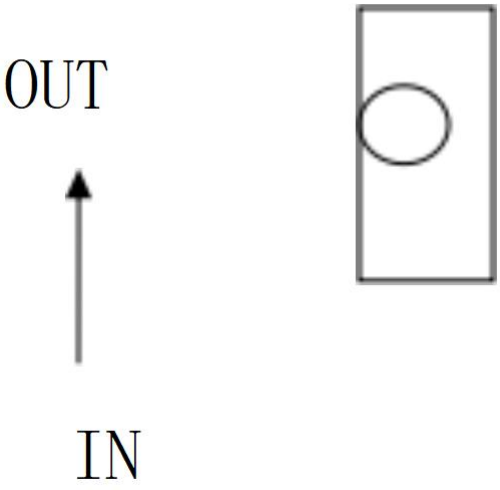


IV. Output Waveform Diagram



Duty Cy=40%～60%

Installation Schematic Diagram



V. Technical Parameters

Applicable Scope

Suitable for fully automatic gas water heaters

Basic Parameters

Parameter	Specification
Minimum Rated Operating Voltage	DC 3.5V
Maximum Operating Current	15 mA (DC 5V)
Operating Voltage Range	DC 3.5–24 V
Load Capacity	≤10 mA (DC 5V)
Operating Temperature Range	≤80°C
Operating Humidity Range	35%–90%RH (non-condensing)
Allowable Water Pressure	≤1.75 MPa
Storage Temperature Range	-25–+80°C
Storage Humidity Range	25%–95%RH

Technical Requirements

Parameter	Specification
Output Pulse High Level	>DC 4.5 V (input voltage DC 5 V)
Output Pulse Low Level	<DC 0.5 V (input voltage DC 5 V)
Accuracy (Flow–Pulse Output)	1–30 L/min ±5%
Output Pulse Duty Cycle	50 ±10%
Output Rise Time	0.04 μS
Output Fall Time	0.18 μS
Flow–Pulse Characteristic	Horizontal test pulse frequency (Hz) = [6.6*Q] ±5% (F = pulses per second, Q = flow rate in L/min) 396 pulses per liter of water
Impact Resistance	Drop test from 50 cm height in X, Y, Z directions onto concrete surface (packaged product): No damage, accuracy change ≤5%
Insulation Resistance	≥100 MΩ between Hall sensor and copper valve body (DC 500V)
Heat Resistance	48h at 80±3°C, return to room temperature for 1–2h: No cracks, looseness, expansion, deformation; accuracy change ≤10%
Cold Resistance	48h at -20±3°C, return to room temperature for 1–2h: No cracks, looseness, expansion, deformation; accuracy change ≤10%
Moisture Resistance	72h at 40±2°C, 90%–95%RH:

Parameter	Specification
	Insulation resistance ≥1 MΩ after removal
Pull Strength	10N tension for 1 minute on lead wires: No detachment, breakage, or performance change
Durability	300,000 cycles at room temperature: 0.1 MPa water pressure, 1S on/0.5S off

VI. Usage Instructions

1. This product outputs NPN pulse signals.
2. The conventional power supply is 3.5-24V. For users connecting to PLCs or circuits with pumps/motors, anti-interference and surge current isolation must be implemented.
3. To prevent particles and debris from entering the sensor, a filter screen or filtering device must be installed at the sensor's water inlet.
4. The water flow sensor should be installed indoors or inside equipment. Do not expose it to outdoor environments or harsh conditions (e.g., humidity, high temperature) for extended periods. Avoid vibrating or shaking environments/applications to prevent affecting measurement accuracy.
5. Do not disassemble the water flow sensor without authorization to avoid damage. Any sensor that has been unauthorizedly disassembled will not be covered under warranty.

VII. Dimension Diagram