YF-S401 Series Flow Sensors

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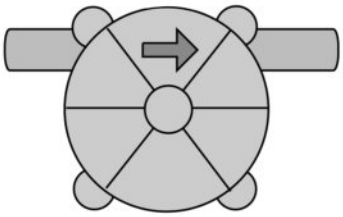
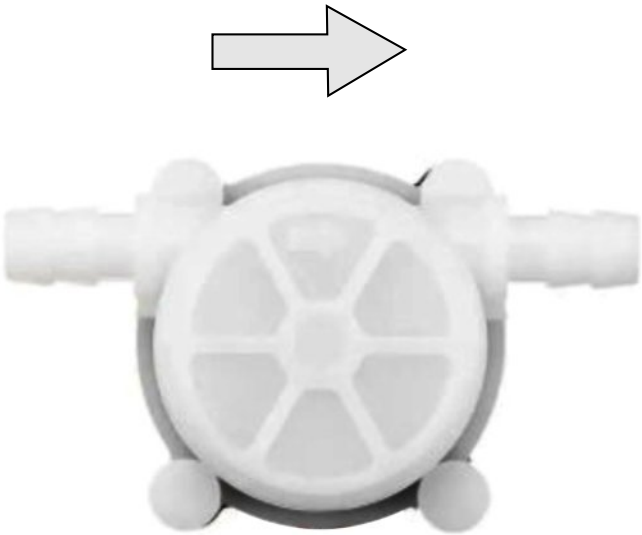
Flow sensors sit in line with your water line, and uses a pinwheel sensor to measure how much liquid has moved through it. The pinwheel has a little magnet attached, and there's a hall effect magnetic sensor on the other side of the plastic tube that can measure how many spins the pinwheel has made through the plastic wall. This method allows the sensor to stay safe and dry.

YF-S401 Features

- Stainless Steel Impeller
- Quality water seals, never leak
- Hall sensors imported from Germany
- All raw materials meet ROSH testing standards
- Light and compact structure, easy to install.



Direction of Flow



YS401 Models

Model	Intake	Output	Flowrate
YF-S401-0207	2mm	7mm	0.2-3l/min
YF-S401-3507	3.5mm	7mm	0.3-6l/min

*** Dimensions refer to inner dimensions**

YF-S401 Technical Specifications

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- **Water-flow Formula: 1L = 5880 square waves**
- **Working Voltage: DC 5V~24V**
- **Working Current: 15mA (DC 5V)**
- **Max Water Pressure: <0.8 MPa**
- **Load Capacity: ≤10mA (DC 5V)**
- **Operating Temperature: ≤ 80C**
- **Liquid Temperature: ≤120C**
- **Operating Humidity: 35% 90%RH**
- **Storage Temperature: -25 + 80C**
- **Storage Humidity: 25% 95%RH**
- **Error: +/- 5%**
- **Insulation resistance > 100M ohm**
- **Output pulse duty cycle 50% ± 10%**
- **Output pulse high level > DC 4.7V (Vsupp = 5V)**
- **Output Pulse : Risetime = 0.04μS Falltime = 0.18μS**

Flow Rate

Model **YF-S401-0207** = 0.2 ~ 3L/min
Model **YF-S401-3507** = 0.3 ~ 6L/min

Flow Rate Formula

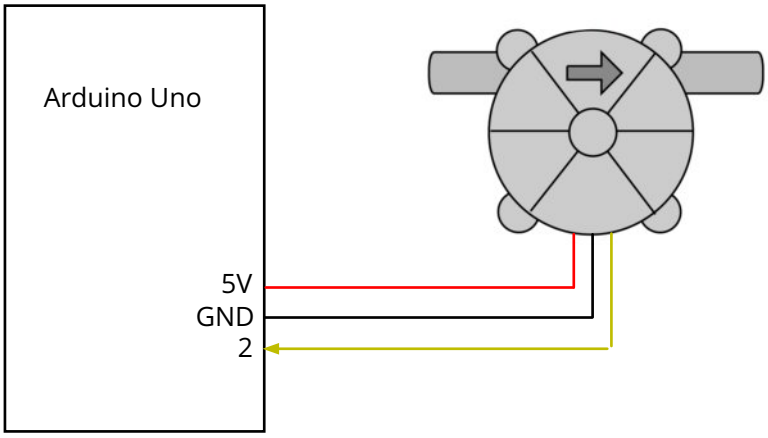
F = (98 * Q) ± 2% Q = L / MIN

Calculation Explanation

Based on YF-S401-3507 (3.5mm Intake / 7mm Out)

- **The range of Model YF-S401-3507 sensor is 300ml to 6000ml per minute.**
- **At 1000ml we get 5880 pulses**
- **Thus pulses per second 5880/60 = 98 Hz square wave**
- **Which has a period of 1/98 = 10.2 millisecond**
- **Thus for 1ml you calculate 5880/1000 = 5.88/60 = 0.098Hz with a period of 10.2 seconds. In the programming, I will be using the pulsein to measure the time of a pulse.**

Arduino Code Example



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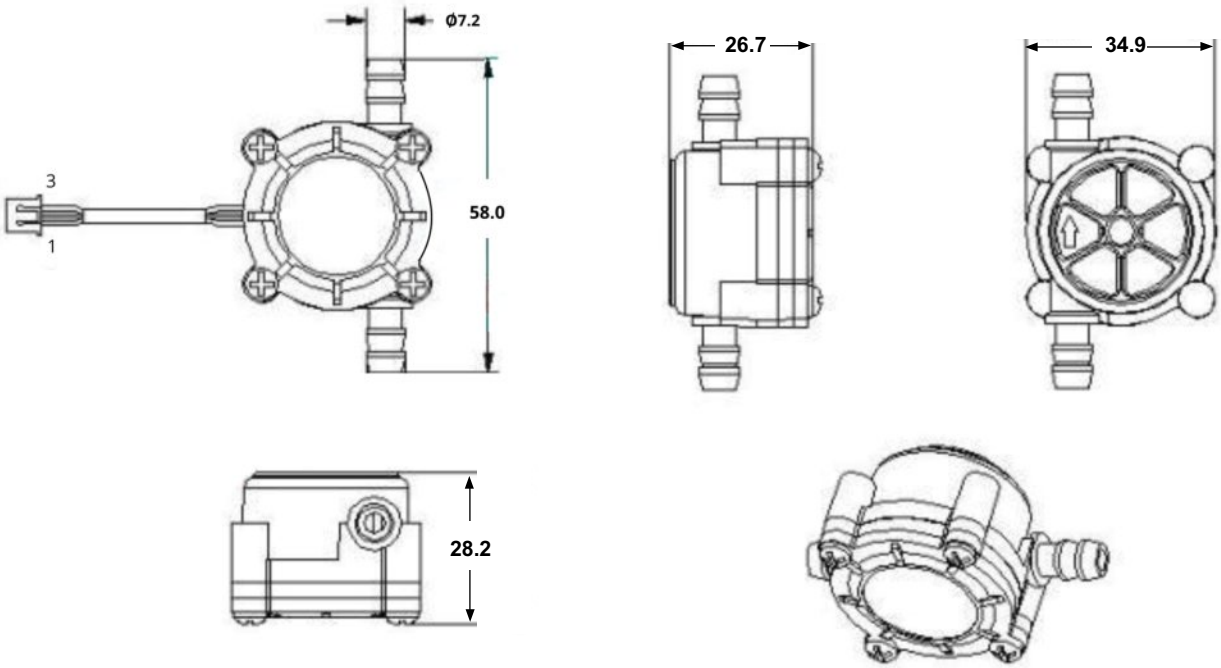
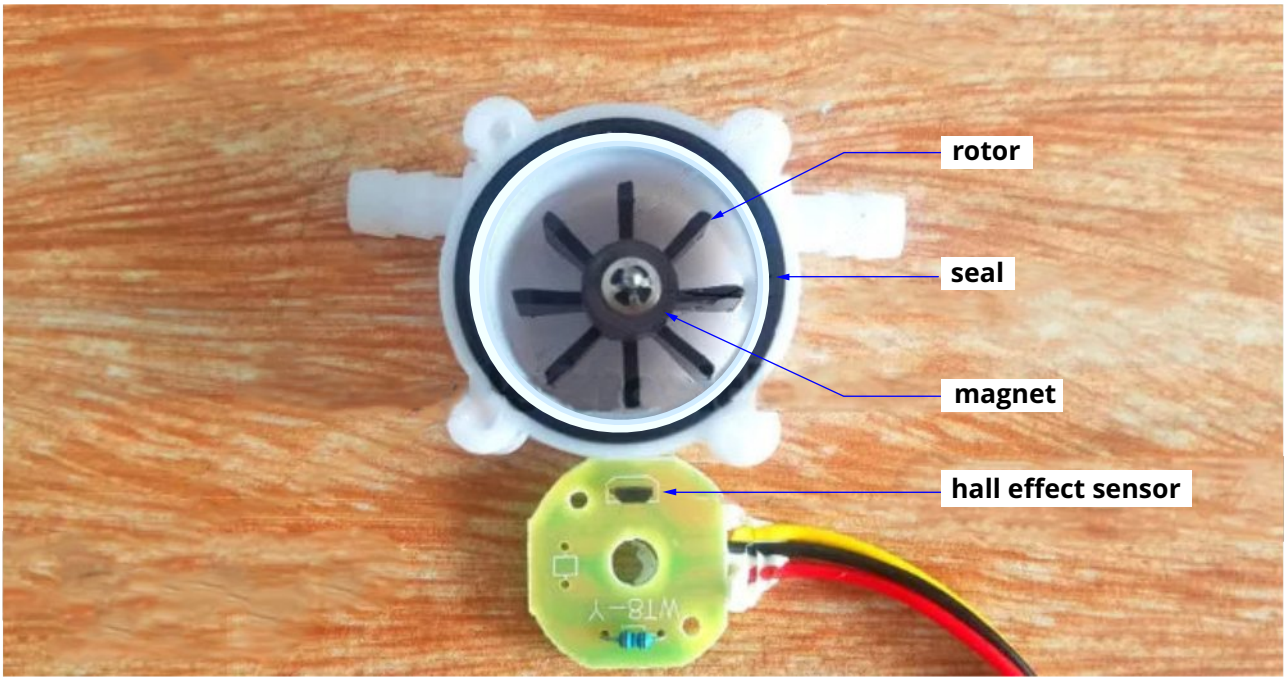
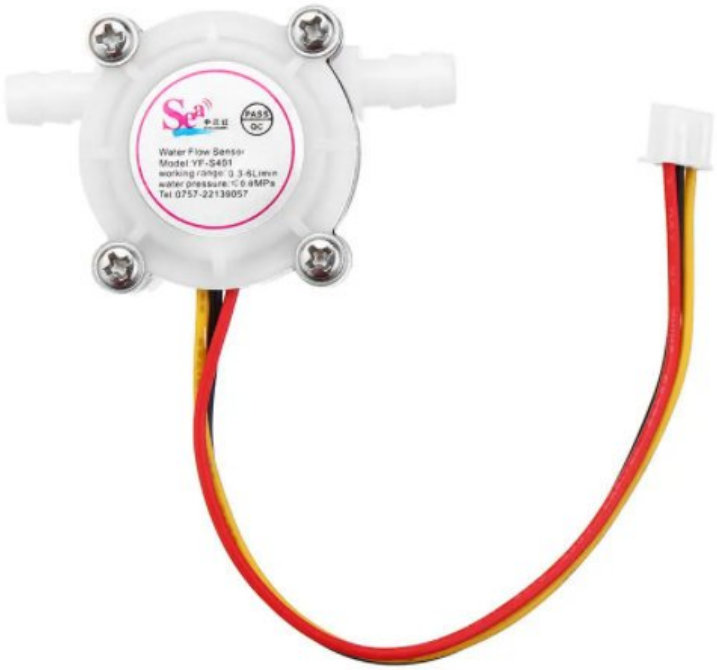
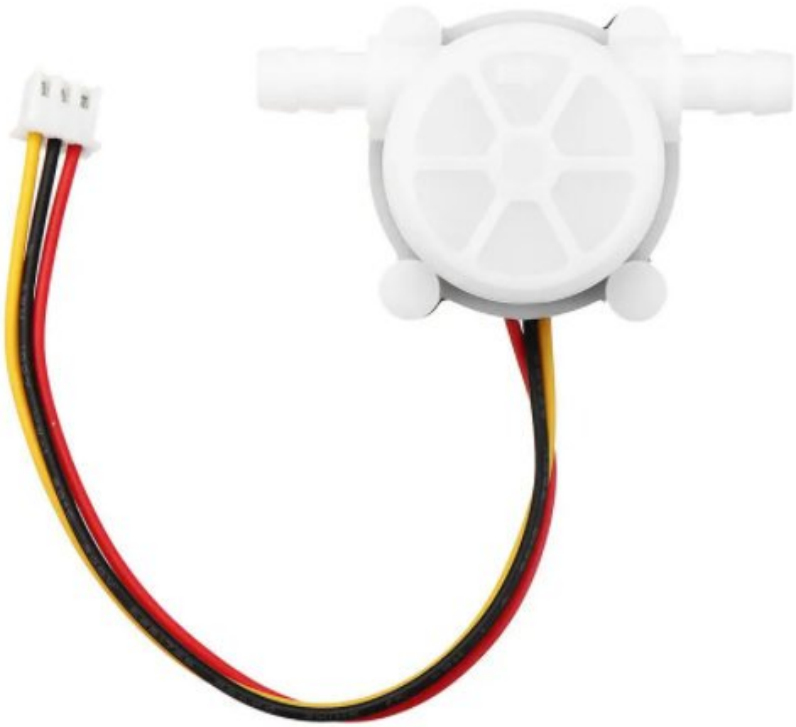
```
int flowPin = 2;        //This is the input pin on the Arduino
double flowRate;        //This is the value we intend to calculate.
volatile int count;     //This integer needs to be set as volatile to ensure it
                        //updates correctly during the interrupt process.

void setup() {
  pinMode(flowPin, INPUT);           // Sets the pin as an input
  attachInterrupt(0, Flow, RISING);  // Configures interrupt 0 (pin 2 on the
                                     // Arduino Uno) to run the function "Flow"
  Serial.begin(9600);  //Start Serial
}


void loop() {

  count = 0;      // Reset the counter so we start counting from 0 again
  interrupts();   //Enables interrupts on the Arduino
  delay (1000);   //Wait 1 second
  noInterrupts(); //Disable the interrupts on the Arduino

  //Start the math
  flowRate = (count * 2.25);    //Take counted pulses in the last second and
                                //multiply by 2.25mL

  flowRate = flowRate * 60;     //Convert seconds to minutes, giving you mL / Minute
  flowRate = flowRate / 1000;   //Convert mL to Liters, giving you Liters / Minute

  Serial.println(flowRate);     //Print the variable flowRate to Serial
}

void Flow()
{
   count++;             //Every time this function is called, increment "count" by 1
}
```

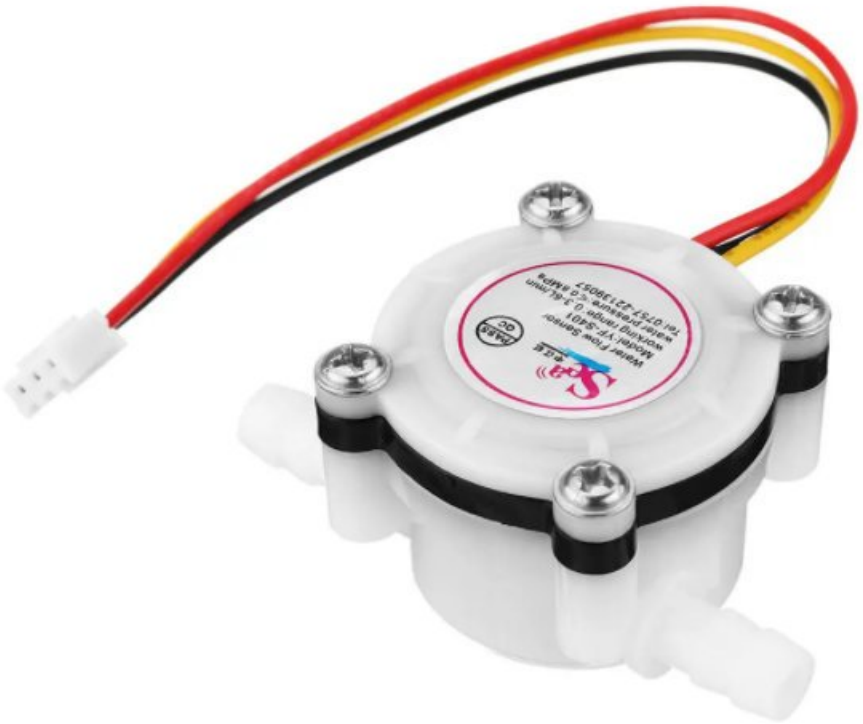
Dimensions






Water Flow Sensor
Model: YF-S401
Tel: 0757-22139057





YF-S401 Pin-Out

1 - Red - Vsup 4.5-24V
2 - Black - GND 4.5-24V
3 - Yellow - Signal Out (PWM)