G 1/2 Water Flow sensor

Introduction

Water flow sensor consists of a plastic valve body, a water rotor, and a hall-effect sensor. When water flows through the rotor, rotor rolls. Its speed changes with different rate of flow. The hall-effect sensor outputs the corresponding pulse Signal.

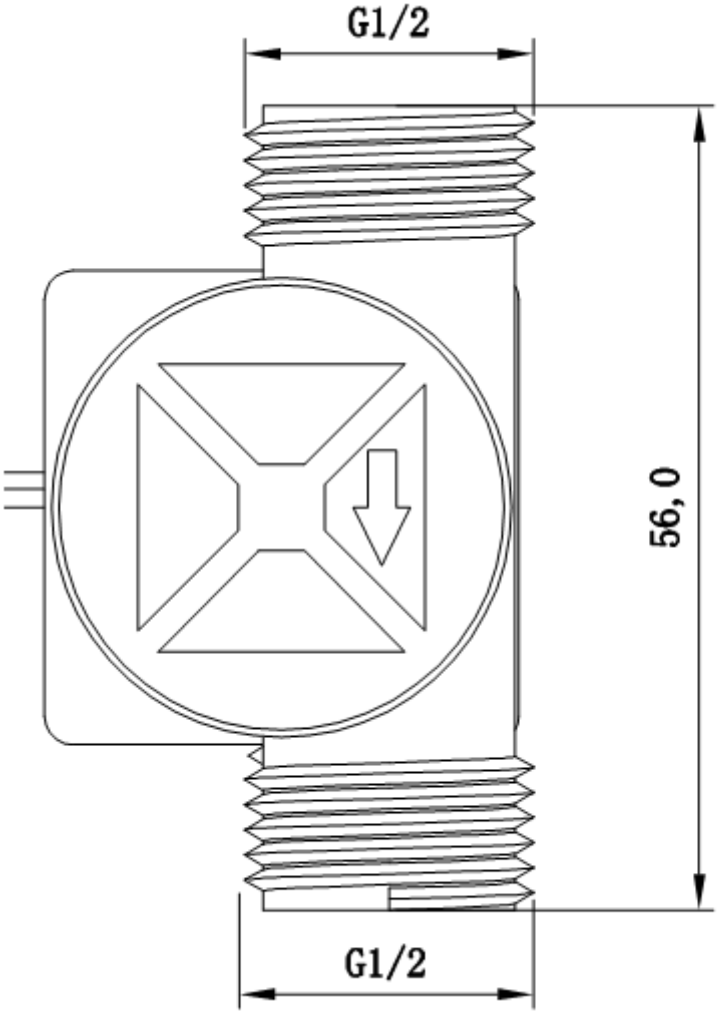
Model:POW110D3B

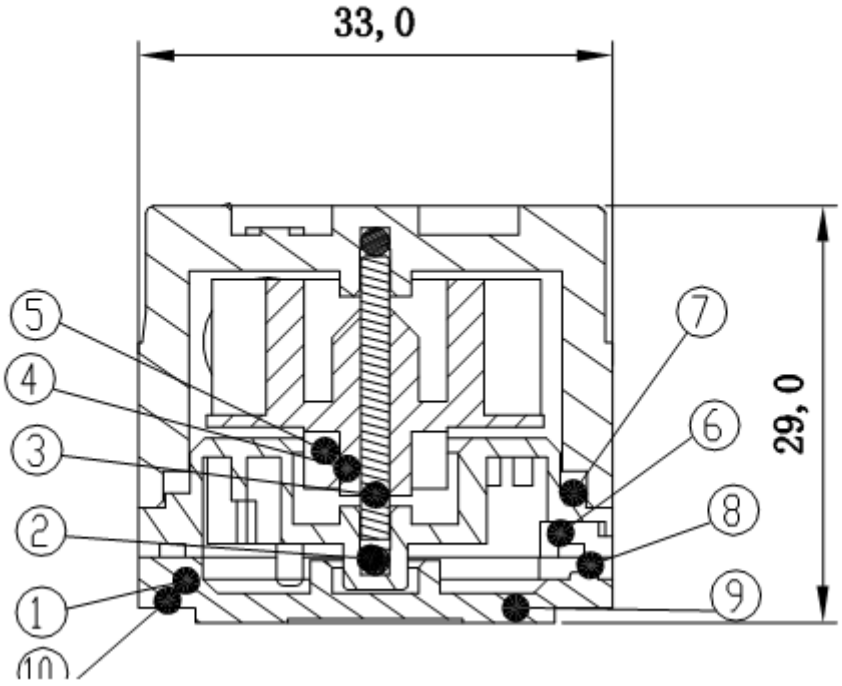
Specification

Working voltage	5V-24V
Maximum current	15 mA（DC 5V）
Weight	43 g
External diameters	20mm
Flow rate range	1～30 L/min
Operating temperature	0℃～80℃
Liquid temperature	<120℃
Operating humidity	35%～90%RH
Operating pressure	under 1.2Mpa
Store temperature	-25℃～+80℃

Mechanic Dimensions

Unit:mm





Sensor Components

No.	Name	Quantity	Material	Note
1	Valve body	1	PA66+33%glass fiber	
2	Stainless steel bead	1	Stainless steel SUS304	
3	Axis	1	Stainless steel SUS304	

4	Impeller	1	POM	
5	Ring magnet	1	Ferrite	
6	Middle ring	1	PA66+33%glass fiber	
7	O-seal ring	1	Rubber	
8	Electronic seal ring	1	Rubber	
9	Cover	1	PA66+33%glass fiber	
10	Screw	4	Stainless steel SUS304	3.0*11
11	Cable	1	1007 24AWG	

Usage Example

Note: This example is abstracted from the forum, which was done by Charles Gantt. Thanks for his contribution.Let's see how it works.

Reading Water Flow rate with Water Flow Sensor

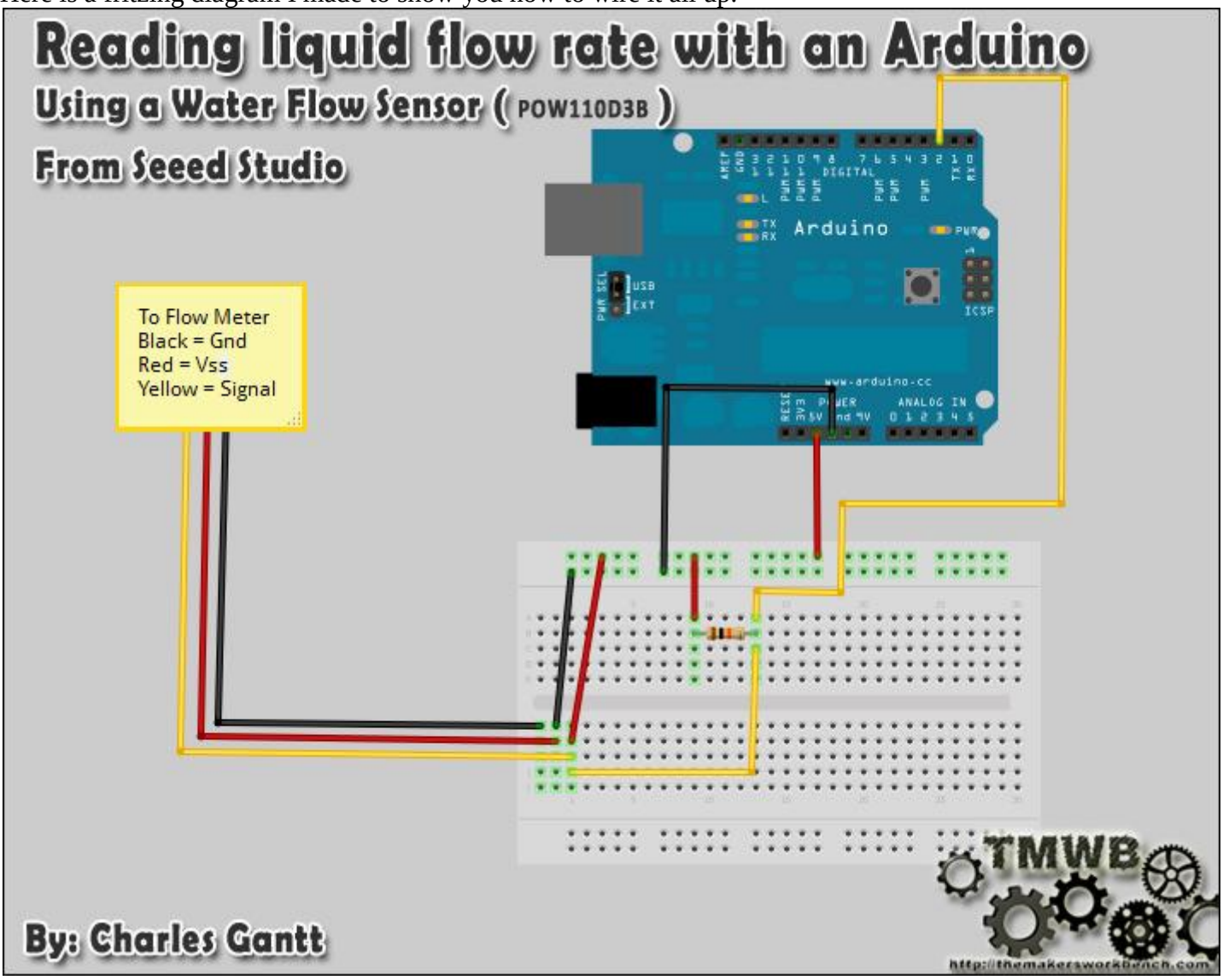
This is part of a project I have been working on and I thought I would share it here since there have been a few threads on how to read water flow rate in liters per hour using the Water Flow Sensor found in the Seeed Studio Depo. It uses a simple rotating wheel that pulses a hall effect sensor. By reading these pulses and implementing a little math, we can read the liquids flow rate accurate to within 3%. The threads are simple G1/2 so finding barbed ends will not be that hard.

Hardware Installation

You will need Seeeduino / Arduino ,Water Flow Sensor,10K resistor,a breadboard and some jumper wires.

Wiring up the Water Flow Sensor is pretty simple. There are 3 wires: Black, Red, and Yellow. Black to the Seeeduino's ground pin Red to Seeeduino's 5v pin The yellow wire will need to be connected to a 10k pull up resistor.and then to pin 2 on the Seeeduino.

Here is a fritzing diagram I made to show you how to wire it all up.



Once you have it wired up you will need to upload the following code to your Seeeduino. Once it is uploaded and you have some fluid flowing through the Water Flow Sensor, you can open the serial monitor and it will display the flow rate, refreshing every second.

Programming

```
// reading liquid flow rate using Seeeduino and Water Flow Sensor from Seeedstudio.com
// Code adapted by Charles Gantt from PC Fan RPM code written by Crenn
@thebestcasescenario.com
// http:/themakersworkbench.com http://thebestcasescenario.com http://seeedstudio.com

volatile int NbTopsFan; //measuring the rising edges of the signal
int Calc;
int hallsensor = 2;    //The pin location of the sensor

void rpm ()     //This is the function that the interupt calls
{
  NbTopsFan++;  //This function measures the rising and falling edge of the

hall effect sensors signal
}
// The setup() method runs once, when the sketch starts
void setup() //
{
  pinMode(hallsensor, INPUT); //initializes digital pin 2 as an input
  Serial.begin(9600); //This is the setup function where the serial port is

initialised,
  attachInterrupt(0, rpm, RISING); //and the interrupt is attached
}
// the loop() method runs over and over again,
// as long as the Arduino has power
```

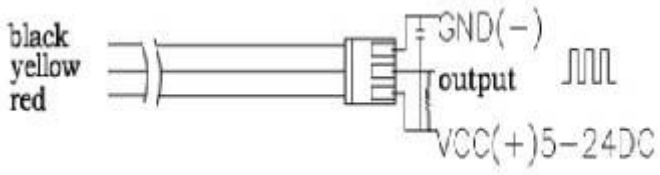
```
void loop ()
{
  NbTopsFan = 0;   //Set NbTops to 0 ready for calculations
  sei();      //Enables interrupts
  delay (1000);   //Wait 1 second
  cli();      //Disable interrupts
  Calc = (NbTopsFan * 60 / 7.5); //(Pulse frequency x 60) / 7.5Q, = flow rate

in L/hour
  Serial.print (Calc, DEC); //Prints the number calculated above
  Serial.print (" L/hour\r\n"); //Prints "L/hour" and returns a  new line
}
```

You can refer our forum for more details about Reading Water Flow rate with Water Flow Sensor.

Wiring Diagram

The external diameter of thread the connections use is 1.4mm.



Output Table

Pulse frequency (Hz) in Horizontal Test= 7.5Q, Q is flow rate in L/min. (Results in +/- 3% range)

Output pulse high level	Signal voltage >4.5 V(input DC 5 V)
Output pulse low level	Signal voltage <0.5V(input DC 5V)
Precision	3% (Flow rate from 1L/min to 10L/min)
Output signal duty cycle	40%～60%

FAQ

Here is the Sensors FAQ, people can go here to find questions and answers for this kind of products.

Question1: What type of materials the sensor is made out of that contact the water?
Answer: The water flow sensor is made of nylon with fiber. It should not be used with strong acid and strong base.

Question2: Is it safe to be used for drinking water?
Answer: Yes, it has been used on drinking machine.

Support

If you have questions or other better design ideas, you can go to our forum or wish to discuss.

Version Tracker

Revision	Descriptions	Release
v1.0	Initial public release	May 31, 2010
v2.0	Public release 2.0	Jul 05, 2010

Resource

- Water flow sensor datasheet.pdf
- Reading Water Flow rate with Water Flow Sensor
- Water Flow rate display on LCD
- datasheet for the material

See Also

Other related products and resources.

Licensing