

SENSOR CODE:

```
#include <LiquidCrystal.h>

#include "DHT.h"

#define DHTPIN 7 // what digital pin we're connected to

#define DHTTYPE DHT11

#define sensorPower 6

#define sensorPin A0

int val = 0;

int readSensor() {

    digitalWrite(sensorPower, HIGH); // Turn the sensor ON

    delay(10); // wait 10 milliseconds

    val = analogRead(sensorPin); // Read the analog value form sensor

    digitalWrite(sensorPower, LOW); // Turn the sensor OFF

    return val; // send current reading

}

volatile int flow_frequency; // Measures flow sensor pulses

unsigned int l_hour; // Calculated litres/hour

unsigned char flowsensor = 9; // Sensor Input

unsigned long currentTime;
```

```

unsigned long cloopTime;

void flow () // Interrupt function
{
    flow_frequency++;
}

LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

DHT dht(DHTPIN, DHTTYPE);

void setup() {
    pinMode(sensorPower, OUTPUT);
    digitalWrite(sensorPower, LOW);
    pinMode(flowsensor, INPUT);
    digitalWrite(flowsensor, HIGH); // Optional Internal Pull-Up
    Serial.begin(9600);
    //20 by 4 character display
    //If you're using a 16x2 display, change it to lcd.begin(16,2);
    attachInterrupt(0, flow, RISING); // Setup Interrupt
    sei(); // Enable interrupts
    currentTime = millis();
    cloopTime = currentTime;
    lcd.begin(20,4);
    Serial.println("DHT11 test!");
    dht.begin();
}

```

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void loop() {

    // Wait a few seconds between measurements.

    delay(1000);

    int level = readSensor();


    // Reading temperature or humidity takes about 250 milliseconds!
    // Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor)

    float h = dht.readHumidity();

    // Read temperature as Celsius (the default)
    float t = dht.readTemperature();


    // Check if any reads failed and exit early (to try again).
    if (isnan(h) || isnan(t) ) {

        Serial.println("Failed to read from DHT sensor!");

        return;
    }


    currentTime = millis();

    // Every second, calculate and print litres/hour
    if(currentTime >= (cloopTime + 1000))
    {

        cloopTime = currentTime; // Updates cloopTime

        // Pulse frequency (Hz) = 7.5Q, Q is flow rate in L/min.

```

```
l_hour = (flow_frequency * 60 / 7.5); // (Pulse frequency x 60 min) / 7.5Q = flowrate in L/hour  
flow_frequency = 0; // Reset Counter  
}
```

```
dht.read(h);  
dht.read(t);  
lcd.clear();  
lcd.setCursor(0,0);  
lcd.print("Humidity: ");  
lcd.print(h);  
lcd.print(" %");  
lcd.setCursor(0,1);  
lcd.print("Temp (C): ");  
lcd.print(t);  
lcd.print(" C");  
lcd.setCursor(0,2);  
lcd.print("Water level : ");  
lcd.print(level);  
lcd.setCursor(0,3);  
lcd.print("Water Flow : ");  
lcd.print(l_hour);  
lcd.print(" L/hour");  
  
//Serial monitor output  
Serial.print("Humidity: ");
```

```
Serial.print(h);  
  
Serial.print(" %\n");  
  
Serial.print("Temp (C): ");  
  
Serial.print(t);  
  
Serial.print(" C\n");  
  
Serial.print("Water level : ");  
  
Serial.print(level);  
  
Serial.print("\n");  
  
Serial.print("Water flow : ");  
  
Serial.print(l_hour);  
  
Serial.print("L/hour\n");  
  
Serial.print("_____ \n");  
  
}
```