LAMPIRAN 1

Datasheets Soil Moisture

Contents

Introduction

This moisture sensor can read the amount of moisture present in the soil surrounding it. It's a low tech sensor, but ideal for monitoring an urban garden, or your pet plant's water level. This is a must have tool for a connected garden!

This sensor uses the two probes to pass current through the soil, and then it reads that resistance to get the moisture level. More water makes the soil conduct electricity more easily (less resistance), while dry soil conducts electricity poorly (more resistance).

It will be helpful to remind you to water your indoor plants or to monitor the soil moisture in your garden.

Specification

- Power supply: 3.3v or 5v
- Output voltage signal: 0~4.2v
- Current: 35mA
- Pin definition:
  Analog output(Blue wire)
  GND(Black wire)
  Power(Red wire)

- Size: 60x20x5mm
- Value range:
  0 ~300 : dry soil
  300~700 : humid soil
  700~950 : in water

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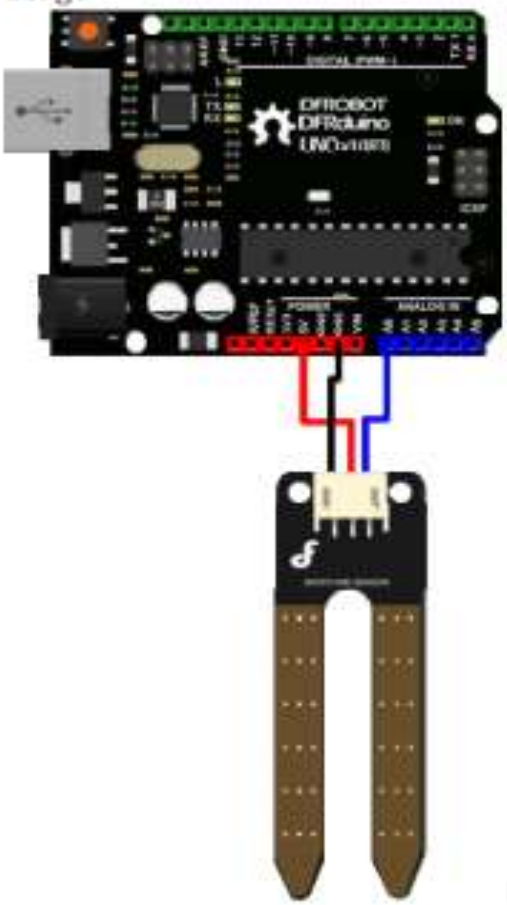
Usage



Moisture sensor Connection diagram

LAMPIRAN 2

Datasheets Water Flow Model: YF-S201

Description:

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. This one is suitable to detect flow in water dispenser or coffee machine. We have a comprehensive line of water flow sensors in different diameters. Check them out to find the one that meets your need most.

Features ;

Compact, Easy to Install High Sealing Performance,

High Quality Hall Effect Sensor, RoHS Compliant

Specifications:

Normal Voltage: DC 5V~18V,

Max. Working Current: 15mA (DC 5V),

Load capacity: ≤ 10 mA (DC 5V),

Flow Rate Range: 1~30L/min ,

Load Capacity: ≤10mA (DC 5V),

Operating Temperature: ≤80℃,

Liquid Temperature: ≤120℃,

Operating Humidity: 35%〜90%,

RH Working Voltage: DC 4.5V~24V,

Allowing Pressure: ≤1.75MPa,

Storage Temperature: -25〜+ 80℃,

Storage Humidity: 25%〜95%RH,

Electric strength 1250V/min,

Insulation resistance ≥ 100MΩ,

External threads: 1/2",

Outer diameter: 20mm,

Intake diameter: 9mm Outlet diameter: 12mm,

Application :

Water heaters, credit card machines, water vending machine, flow measurement device.

LAMPIRAN 3

Datasheets Relay Module

Name: **Relay Module 2-Channel**
Code: **MR009-004.1**

This *Relay Module 2-Channel* is a module designed to allow you to control two relays in a very simple and intuitive manner. Being compatible with Arduino, the most immediate way to use it is to connect it to an Arduino board using flexible jumpers.

Exploiting the characteristics of the relays mounted on the module and through the use of two Arduino digital I/O pins, it is possible to control motors, inductive loads and other devices; this product is therefore fundamental in domotics projects or, more in general, in robotics projects.

The module is equipped with optocouplers on *IN1* and *IN2* lines in such a way that it ensures the galvanic insulation between the relay load and the control board which drives this module.

CONNECTIONS

Pin	*Function*
IN1	TTL digital input
IN2	TTL digital input
GND	Ground
+5V	Power (+5V)
NO1	Normally open contact
COM1	Common contact
NC1	Normally closed contact

LAMPIRAN 4

Datasheets NodeMCU ESP8266

Description

In the Internet of Things business, Espressif's ESP8266 presents a highly integrated Wi-Fi SoC solution to meet consumers' constant expectations for efficient power utilization, compact design, and reliable performance. The ESP8266 can operate as a standalone a pplication or as a slave to a host MCU due to its complete and self-contained Wi-Fi netw orking capabilities. When the application is hosted by the ESP8266EX, it starts up right a way from the flash.

ESP8266 Features

• 802.11 b/g/n support

• 802.11 n support (2.4 GHz), up to 72.2 Mbps

• Defragmentation

• 2 x virtual Wi-Fi interface

• Automatic beacon monitoring (hardware TSF)

• Support Infrastructure BSS Station mode/SoftAP mode/Promiscuous mode

LAMPIRAN 5

Sketch Koding Program

```
#include "FirebaseESP8266.h"  // Install Firebase ESP8266 library

#include <ESP8266WiFi.h>

#define FIREBASE_HOST

"https://perhitungan-jumlah-debit-air-default-rtdb.firebaseio.com/"        //Without
http:// or https:// schemes

#defineFIREBASE_AUTH
"N858kwizjJM0NN8UHTUfRevLLdEiavCwA2M9kaUP"

#define WIFI_SSID "Redmi 10"

#define WIFI_PASSWORD "11111111"

const int SoilSensor = A0;

int sensorPin = D2;

const int ledPin =  D6;

volatile long pulse;

unsigned long lastTime;

FirebaseData firebaseData;
```

```
FirebaseData ledData;

FirebaseJson json;

float volume;

void setup() {

  pinMode(sensorPin, INPUT);

   pinMode(ledPin, OUTPUT);

  Serial.begin(9600);

  attachInterrupt(digitalPinToInterrupt(sensorPin), increase, RISING);

   WiFi.begin(WIFI_SSID, WIFI_PASSWORD);

  Serial.print("Connecting to Wi-Fi");

  while (WiFi.status() != WL_CONNECTED)

  { Serial.print(".");

    delay(300); }

  Serial.println();

  Serial.print("Connected with IP: ");

  Serial.println(WiFi.localIP());
```

```
  Serial.println();
  Firebase.begin(FIREBASE_HOST, FIREBASE_AUTH);
  Firebase.reconnectWiFi(true); }
void loop() {
 float kelembabanTanah;
 int hasilPembacaan = analogRead(SoilSensor);
 kelembabanTanah = (100 - ((hasilPembacaan/1023.00)*100));
  volume = 2.663 * pulse / 1000 * 30;
  if (millis() - lastTime > 2000) {
    pulse = 0;
    lastTime = millis();  }
  Serial.print(volume);
  Serial.println(" L/m");
  Serial.print("Persentase Kelembaban Tanah = ");
  Serial.print(kelembabanTanah);
  Serial.println("%");
```

```
  if (Firebase.setFloat(firebaseData, "/FirebaseIOT/Debit Air", volume))  {
   Serial.println("PASSED");
   Serial.println("PATH: " + firebaseData.dataPath());
   Serial.println("TYPE: " + firebaseData.dataType());
   Serial.println("ETag: " + firebaseData.ETag());
   Serial.println("------------------------------------");
   Serial.println();
  } else{
   Serial.println("FAILED");
   Serial.println("REASON: " + firebaseData.errorReason());
   Serial.println("------------------------------------");
   Serial.println();  }
  if (Firebase.setFloat(firebaseData, "/FirebaseIOT/Kelembaban Tanah", kelembabanTanah))  {
   Serial.println("PASSED");
   Serial.println("PATH: " + firebaseData.dataPath());
```

```
    Serial.println("TYPE: " + firebaseData.dataType());
    Serial.println("ETag: " + firebaseData.ETag());
    Serial.println("------------------------------------");
    Serial.println();
  }  else {
    Serial.println("FAILED");
    Serial.println("REASON: " + firebaseData.errorReason());
    Serial.println("------------------------------------");
    Serial.println(); }
  if (kelembabanTanah <60){
    digitalWrite(ledPin, LOW);
  } else {
    digitalWrite(ledPin, HIGH);
  } delay(100); }
ICACHE_RAM_ATTR void increase() {
  pulse++; }
```