AZ-Delivery

Welcome!

Thank you for purchasing our *AZ-Delivery Soil Moisture Sensor Module v1.2*. On the following pages, you will be introduced to how to use and set up this handy device.

Have fun!

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Introduction

The module is a capacitive soil moisture sensor. It is called capacitive because the two copper plates on the sensor represent the two plates of a capacitor. When the sensor is connected to the power supply, it acts as a capacitor. The capacitance of the sensor changes when the different material is in between the plates. The change in capacitance is outputted from the sensor as the voltage change, which can be read with the microcontroller. The material between the plates is called the dielectric. How much the capacitance changes for the given material is called the dielectric constant of the material. Dry soil has a different dielectric constant than wet soil, which means that a sensor in wet soil has a different capacitance than the one in dry soil.

The sensor board is made of corrosion-resistant material, giving the sensor a long service life with no corroding.
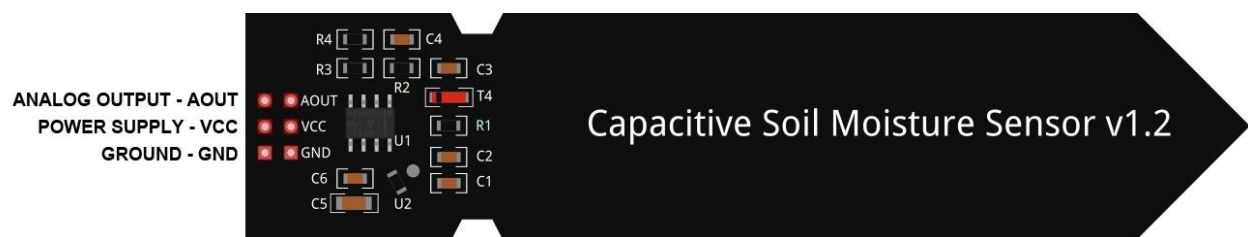
The soil moisture represents the content of water in the soil.

Specifications

- » Power supply voltage: 5V
- » Output Voltage: Analog
- » Dimensions: 22 x 97 x 9mm,

  with 3 wire cable of 190mm

The pinout

The Soil Moisture Sensor Module v1.2 has *3* pins. The pinout is shown in the following image:

How to set-up Arduino IDE

If the Arduino IDE is not installed, follow the *link* and download the installation file for the operating system of choice.

Download the Arduino IDE

For *Windows* users, double click on the downloaded *.exe* file and follow the instructions in the installation window.

For *Linux* users, download a file with the extension *.tar.xz*, which has to be extracted. When it is extracted, go to the extracted directory and open the terminal in that directory. Two *.sh* scripts have to be executed, the first called *arduino-linux-setup.sh* and the second called *install.sh*.

To run the first script in the terminal, open the terminal in the extracted directory and run the following command:
sh arduino-linux-setup.sh user_name
user_name - is the name of a superuser in Linux operating system. A password for the superuser has to be entered when the command is started. Wait for a few minutes for the script to complete everything.

The second script, called *install.sh*, has to be used after the installation of the first script. Run the following command in the terminal (extracted directory): **sh install.sh**

After the installation of these scripts, go to the *All Apps*, where the *Arduino IDE* is installed.
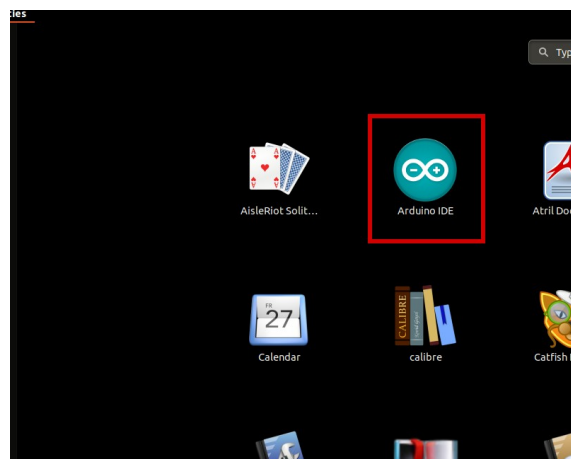
Almost all operating systems come with a text editor preinstalled (for example, *Windows* comes with *Notepad*, *Linux Ubuntu* comes with *Gedit*, *Linux Raspbian* comes with *Leafpad*, etc.). All of these text editors are perfectly fine for the purpose of the eBook.

Next thing is to check if your PC can detect an Arduino board. Open freshly installed Arduino IDE, and go to:

Tools > Board > {your board name here}

{your board name here} should be the *Arduino/Genuino Uno*, as it can be seen on the following image:
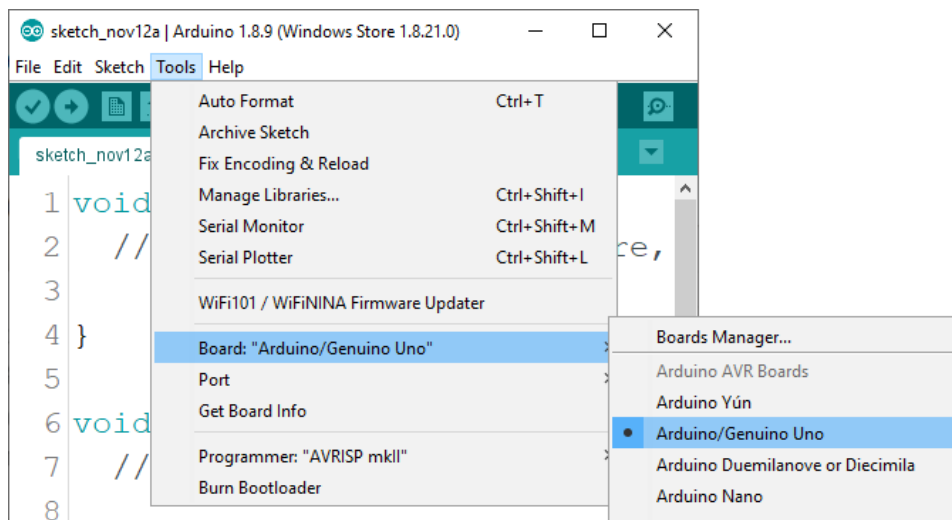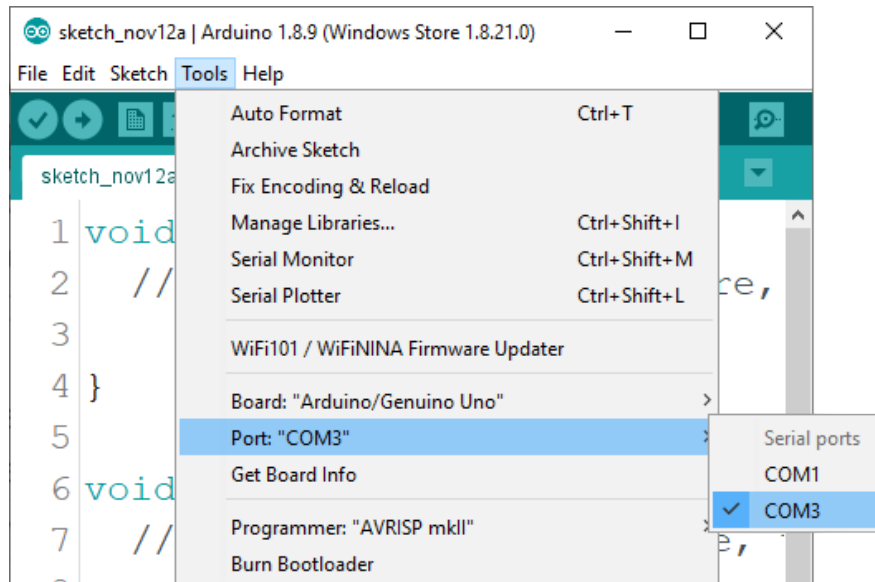

The port to which the Arduino board is connected has to be selected. Go to:

Tools > Port > {port name goes here}

and when the Arduino board is connected to the USB port, the port name can be seen in the drop-down menu on the previous image.
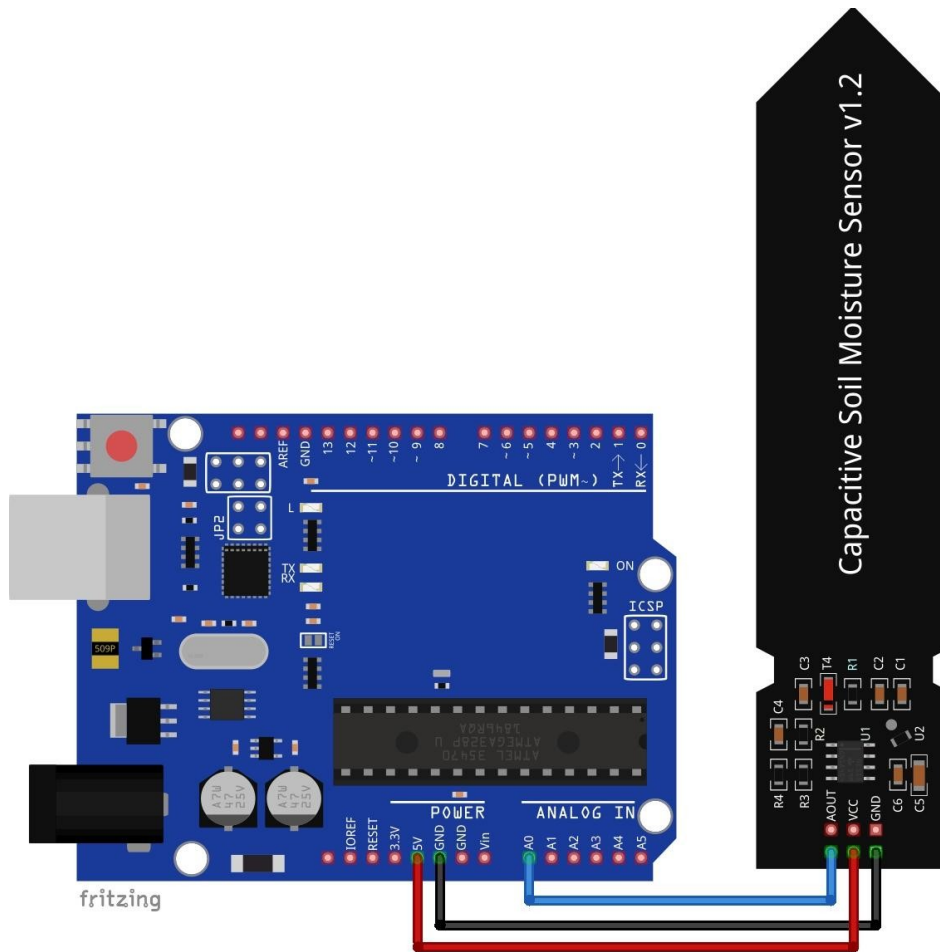
If the Arduino IDE is used on Windows, port names are as follows:

For *Linux* users, for example, port name is */dev/ttyUSBx*, where *x* represents integer number between *0* and *9*.

Connecting Arduino Uno with module

Connect the module with the Uno as shown on the following connection diagram:

| Soil Moisture Sensor pin	Uno pin	Wire color
GND	GND	**Black wire**
VCC	5V	**Red wire**
AOUT	A0	**Blue wire**

Sketch example

The following sketch example is modified buil-in sketch from an Arduino IDE: *File > Examples > Basics > AnalogReadSerial*

```cpp
void setup() {
  Serial.begin(9600);
}

void loop() {
  int sensorValue = analogRead(A0);
  Serial.println(sensorValue);
  delay(100);        // delay in between reads for stability
}
```

Upload the sketch to the Uno and open the Serial monitor (*Tools > Serial Monitor*). The output should be like on the following image:
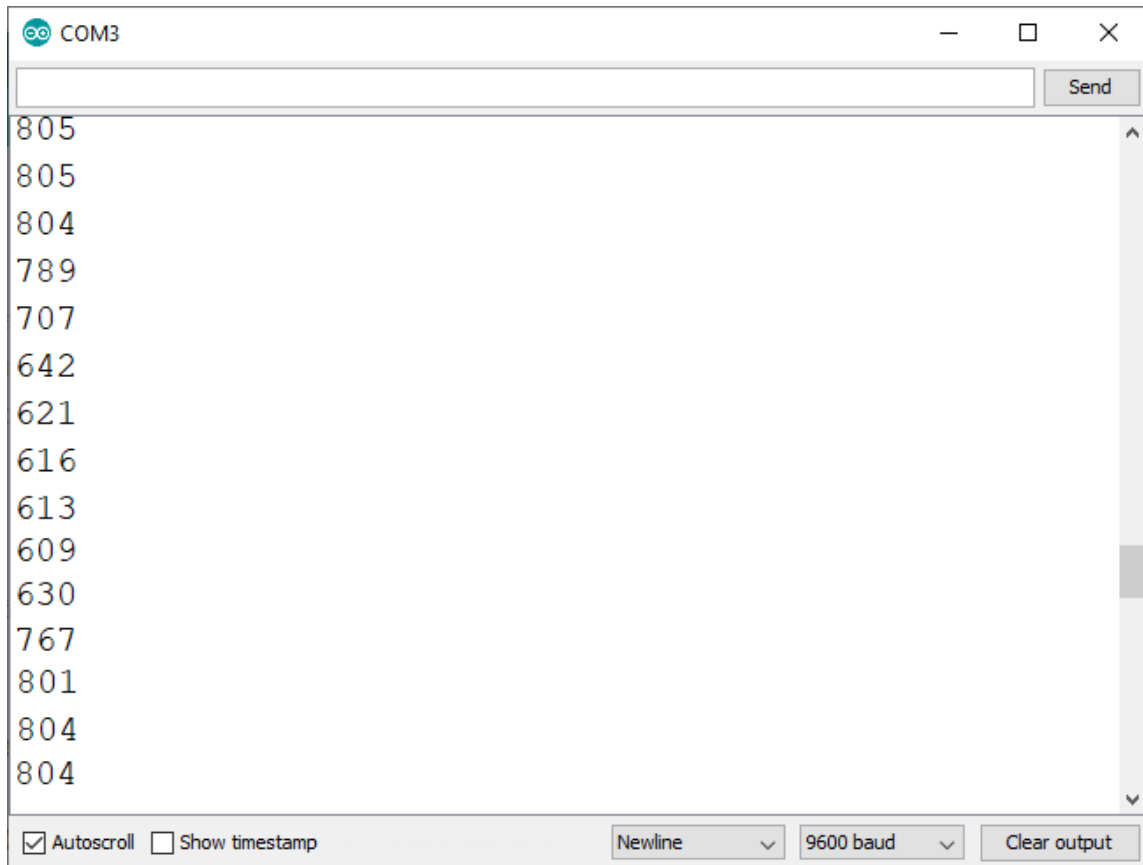
Now it is the time to learn and make your own projects. You can do that with the help of many example scripts and other tutorials, which can be found on the Internet.

If you are looking for the high quality products for Arduino and Raspberry Pi, AZ-Delivery Vertriebs GmbH is the right company to get them from. You will be provided with numerous application examples, full installation guides, eBooks, libraries and assistance from our technical experts.

https://az-delivery.de

Have Fun!

Impressum

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