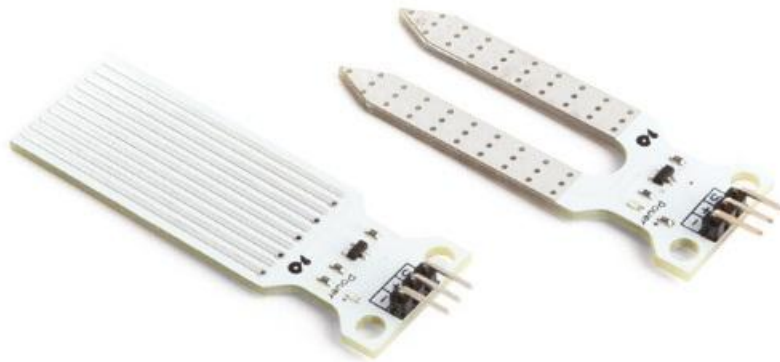# MAKEVMA303

ARDUINO® COMPATIBLE SOIL MOISTURE SENSOR + WATER LEVEL SENSOR MODULE

USER MANUAL

USER MANUAL

1.   Introduction

To all residents of the European Union

Important environmental information about this product

This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

If in doubt, contact your local waste disposal authorities.

Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, do not install or use it and contact your dealer.

2.   Safety Instructions

⚠	• This device can be used by children aged from 8 years and above, and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the device in a safe way and understand the hazards involved. Children shall not play with the device. Cleaning and user maintenance shall not be made by children without supervision.

🏠	• Indoor use only. Keep away from rain, moisture, splashing and dripping liquids.

3.   General Guidelines

ⓘ	• Familiarise yourself with the functions of the device before actually using it. • All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by the warranty. • Only use the device for its intended purpose. Using the device in an unauthorised way will void the warranty. • Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems. • The dealers cannot be held responsible for any damage (extraordinary, incidental or indirect) – of any nature (financial, physical…) arising from the possession, use or failure of this product. • Due to constant product improvements, the actual product appearance might differ from the shown images. • Product images are for illustrative purposes only. • Do not switch the device on immediately after it has been exposed to changes in temperature. Protect the device against damage by leaving it switched off until it has reached room temperature. • Keep this manual for future reference.

4.   What is Arduino®

Arduino® is an open-source prototyping platform based in easy-to-use hardware and software. Arduino® boards are able to read inputs – light-on sensor, a finger on a button or a Twitter message – and turn it into an output – activating of a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so, you use the Arduino programming language (based on Wiring) and the Arduino® software IDE (based on Processing).

Surf to www.arduino.cc and www.arduino.org for more information.

5.   Overview

This package includes a water level sensor and a soil moisture sensor.

If the boards have water covering the sensor parts, an analogue value will be available at the "SIG" connection.

voltage .... 5 VDC
dimensions .... 65 x 20 mm
weight .... 5 g

6.   Making a Soil Moisture Sensor

The hardware consists of an Arduino® microcontroller (here a MAKEVMA100 Arduino® Uno) and the soil moisture sensor module.

The soil moisture sensor module, built around the LM393 comparator (not included), gives an active-low (L) level output when the soil is dry (determined by a pre-set threshold value). This digital output (wet soil → L / dry soil → H) is routed to one I/O terminal (D2) of the Arduino® microcontroller. Based on this input (at D2) Arduino® gives an active-high (H) output through D13 when the soil is dry, and an active-low (L) output when the soil is wet.
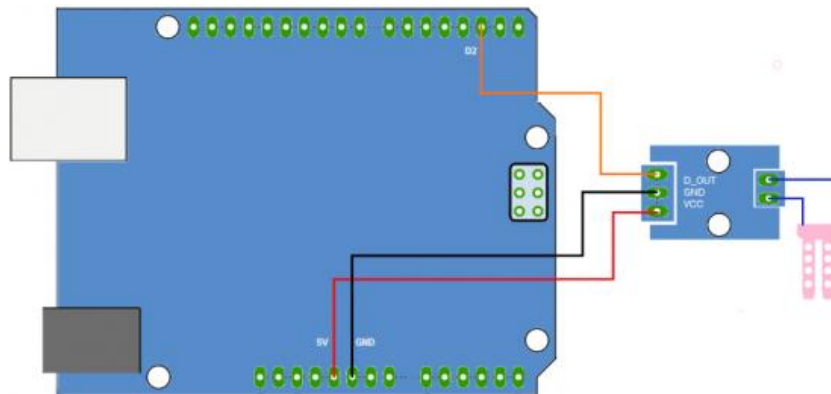
The +5 V supply line (VCC) of the module is linked to the 5 V line of the Arduino®. GND of the module is the common (0 V) connection. The digital signal output to be detected (usually marked as DO in the module) is applied to input D2 of the Arduino®. The analogue output (marked as AO) from the module is not used here. The sensor head of the module contains two probes in a small metal PCB. When the sensor head is inserted in wet soil, the moisture bridges the probes through a low-resistance path (when the soil is dry, resistance between the probes is also high). A potentiometer in the module will adjust the soil wet/dry detection sensitivity according to actual requirements.

7. Example

```
int GLED= 13; // Wet Indicator at Digital PIN D13

int RLED= 12; // Dry Indicator at Digital PIN D12

int SENSE= 0; // Soil Sensor input at Analog PIN A0

int value= 0;

void setup() {

   Serial.begin(9600);

   pinMode(GLED, OUTPUT);

   pinMode(RLED, OUTPUT);

   Serial.println("SOIL MOISTURE SENSOR");

   Serial.println("---------------------------");

}

void loop() {

   value= analogRead(SENSE);

   value= value/10;

   Serial.println(value);

   if(value<50)

   {

      digitalWrite(GLED, HIGH);

   }

   else

   {

      digitalWrite(RLED,HIGH);

   }

   delay(1000);

   digitalWrite(GLED,LOW);

   digitalWrite(RLED, LOW);

}
```