

# Stop Over-Watering With Soil Moisture Sensors

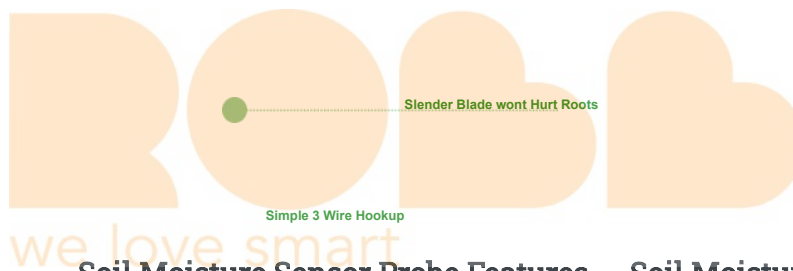
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## VH400 Low-Cost Soil Moisture Sensors

- Simple 3 Wire Hookup
- Reverse Polarity Protection
- Rugged and Waterproof Case
- Blade will Never Corrode
- Ignores Salts in Soil
- Fast Response Time



Rugged and Waterproof VH400 Soil Moistures for Professionals



## Soil Moisture Sensor Probe Features

- Saves water and money.
- Pays for itself.
- Rugged design for long term use.
- Waterproof and can be buried at any depth.
- Thin blade does not disturb roots.
- Probe does not corrode over time.
- Reverse Polarity Protection.
- Rapid response time.
- Accurate and precise measurement.
- Insensitive to salinity.
- Low power for battery operation.
- Measures volumetric water content (VWC).
- Measures gravimetric water content (GWC).
- Output Voltage is proportional to moisture level.
- Wide input supply voltage range.
- Connect to any decent logger or control system.

## Soil Moisture Sensor Probe Applications

- Replace sprinkler rain sensors.
- Save money - stop watering when your soil is wet.
- Create the perfect conditions for compost piles.
- Conduct scientific research.
- Monitor flooding.
- Get text messages and phone alerts from your plants.
- Protect concrete foundations by maintaining adequate soil moisture.

## VH400 Soil Moisture Sensor Details

**W**ater is the most precious resource on our planet. Measure it, control it, and conserve it, with our VH400 soil moisture sensor.

The VH400 is an professional electronic soil moisture sensor. It is so sensitive, that it can measure the moisture in your hands when you touch its blade.

### Waterproof and Rugged

Made of durable ABS plastic, and fiberglass, our VH400 moisture sensor is absolutely water proof and rugged, ready for the most challenging application that you can throw at it. It can be buried at any depth in the ground, or be inserted above ground, or into the soil of your potted plants.

### Ignores the Salt in your Soil

Most other sensors, especially conductivity or resistance based sensors are ineffective, because salts and fertilizers found in soil bias their readings. The VH400 moisture sensor uses superior transmission line techniques as does (TDR) to measure the water moisture in any soil regardless of soil salinity.

Unlike resistive or conductivity sensors, our probes do not use exposed metal to make measurements. They will never corrode, or need to be recalibrated.

### Thin Blades Prevent Root Damage

Imagine your doctor giving you a shot with a syringe used for elephants. Ouch! Your plants are no different, and they will thank you for not using giant probes to take soil moisture measurements.

We designed the blade of the sensor to be as slender as possible. It can be inserted into soil and pots with minimal disturbance to the vital root systems of your plants. We have yet to find another moisture sensor with a thinner blade.

### Rapid Response Time

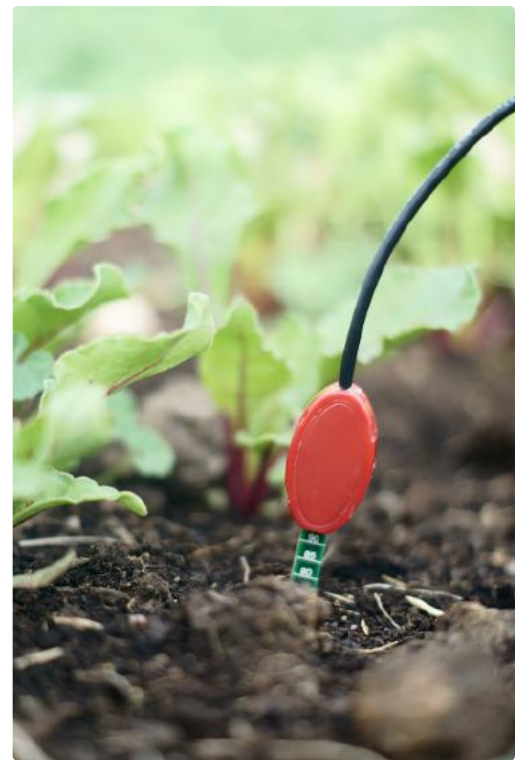
The VH400 sensors are extremely fast. The output response is instantaneous with changes to water moisture. When you pour water on a plant, you will see the change in moisture in real time. This rapid response time allows you to walk around, and spot check the moisture of different soils and plants, by quickly sliding in the blade, and taking a measurement. We offer a [handheld moisture meter](#) with the VH400 sensor for this purpose.

### Interface Our Sensors to any System

The VH400 will easily interface to any decent data logger, or microcontroller. Customers have connected it to Arduino boards, electron particle IO boards, and a slew of common microcontrollers. The output ranges from 0 to 3V so any system that can read a voltage can interface to it. For evaluation use a common volt meter to read its output, and determine the soil moisture level.

### Designed to be Indestructible

Our sensor design anticipates every problem you might encounter. We've added reverse polarity protection to the 3 wire interface. If by chance you connect the three wires from the cable in the incorrect order to power, signal and ground, that's okay. The probe will not be damaged.



VH400 Soil Moisture Sensor Monitoring Beet Plants

#### Tim's Corner



The following data is a real time graph of the soil moisture of our office plant from [VegeCloud.com](#). You can see in the picture that we use a VH400 connected to a [VegeHub](#).

My wife gave this to me when I started Vegetronix back in 2008, and told me that it was a metaphor for our love - if it ever died it was over for us. Luckily for me, but unlike my marriage, it can go long stretches with virtually no care.



Vegetronix Office Plant

## Vegetronix Modular Building Blocks

We provide modular building blocks that you need to create your soil moisture application. With these building blocks, you can create systems that will monitor soil moisture, and automatically control watering.

For recording data, we carry simple low-cost [data loggers](#), which can read up to 8 sensors. Waterproof [wall mountable displays](#) allow you to see your sensor data, near its source.

For remote viewing of data, we provide a [WiFi Data Logger](#), which will read up to 4 sensors, and store data in the cloud. This [Sensor Hub](#) lets you remotely view your sensor data on your phone's web browser. You can even receive text messages, and email alerts.

We've partnered with the sensor cloud site - [VegeCloud.com](#) which will graph, store, and manage your water level sensor data.

## Save Money - Stop Over Watering

We are passionate about helping you saving water, and money. We offer several solutions for your sprinkler systems.

Some sprinkler systems use contact closure rain sensors. These can be replaced with a combination of a VH400 sensor with a [contact closure relay board](#). When the soil is wet, the relay contacts will close, simulating the result of a rain sensor. This is more accurate than a rain sensor, because you care about the soil moisture, and not whether it has rained.

If your sprinkler has no sensor input, use our [Sprinkler Relay Boards](#). These connect between the wires of your sprinkler timer, and your valves. When the clock turns on a particular zone, the Sprinkler Relay Board blocks the signal to the valve, if the soil is already wet. It also turns off the valve mid-cycle as the moisture sensor reaches the desired moisture level.

## Pays for Itself

Water is expensive. We have found that people over water by as much as 200%. Think about your savings, if you could cut your water bill in half. Our customers find that our products pay for themselves in as little as one month.

## Bonus Features

The VH400 is very low power. It draws only 12mA when activated. For low power battery applications, the VH400 can be powered briefly before reading, and then shut down, to conserve battery power.

Not only does the VH400 measure soil moisture, but it can be used as a water level sensor. One side of the blade has ruled markings every 10mm for this purpose. As the sensor blade is dipped into water the voltage output will raise proportionally.

Our sensors come in standard cable lengths of 2 meters, 5 meters and 10 meters. See the [ordering table](#) below.

## We Want you to be Happy



Real Time Moisture Data from Vegetronix Office Plant

Ordering is easy and low risk. Since we build our own products at our factory, all of our products are in stock. When you place your order from our website, it will ship same day from our factory, and you'll have it in your hands in just a couple of days. We ship to nearly EVERY COUNTRY in the world.

If you aren't amazed and delighted by your new VH400 soil moisture sensor, return it for a refund within 30 days.

## Soil Moisture Sensor Probe Pricing and Ordering Info

→ We ship to nearly EVERY COUNTRY on the planet, directly to you from our factory.

→ 99% of orders ship same day.

### BUY NOW FROM OUR WEBSITE STORE

Part Number	Description	Price	Purchase
VH400-2M	Soil Moisture Sensor - 2 meter cable	\$41.95	<a href="#">Buy Now</a>
VH400-5M	Soil Moisture Sensor - 5 meter cable	\$48.95	<a href="#">Buy Now</a>
VH400-10M	Soil Moisture Sensor - 10 meter cable	\$58.95	<a href="#">Buy Now</a>

Contact us for pricing information.

## Other Vegetronix Products of Interest

- [Soil Moisture Meter](#)
- [VegeHub Garden Sensor WiFi Hub](#)
- [Universal Sensor Display](#)
- [Soil Moisture Sensor Relay Boards](#)
- [Water Level Sensors](#)
- [Soil Temperature Sensors](#)
- [Voltage to Current Loop Translators](#)
- [SDI-12 Protocol Translators](#)
- [Data Loggers](#)
- [Extension Cable for VH400 Probes](#)
- [Extension Cable Splice Kit](#)



VH400 - Soil Moisture Sensor Probe

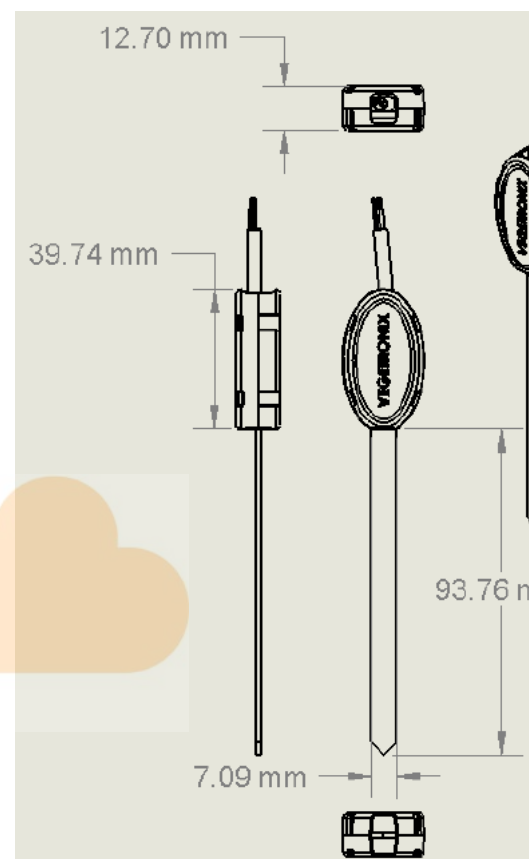
## Soil Moisture Sensor Relay Boards

The quickest way to evaluate if the VH400 series is right for you is to also order some of our sensor relay boards. The [relay boards](#) accept input from a single sensor and control a solid state or mechanical relay. The relay contacts can be configured to close when wet, or open when wet. The dry/wet threshold is easily set by an on board variable resistor, which can be tuned with a small screwdriver. With our relay boards, within minutes you'll be using your VH400 soil moisture probe to control, valves, alarms or home automation systems.

## Soil Moisture Sensor Probe Specifications

VH400 Sensor	
Power consumption	< 13mA
Supply Voltage	3.5V to 20 VDC.
Dimensions	See drawing below.
Power on to Output stable	400 ms
Output Impedance	10K ohms
Operational Temperature	-40°C to 85°C
Accuracy at 25°C	2%
Output	0 to 3V related to moisture content
Shell Color	Red
Voltage Output Curves	<a href="#">Curves</a> , <a href="#">Piecewise linear equations</a>
Certifications	<a href="#">CE Declaration of Conformity</a>

## VH400 Soil Moisture Sensor Probe Drawing



VH400 Soil Moisture sensor Drawing

## Soil Moisture Sensor Probe Wiring Table

Bare	Ground
Red	POWER: 3.5V to 20 VDC.
Black	OUT: (0 to 3V related to moisture content.)

## Soil Moisture Sensor Probe Technical Literature

See our [Soil Moisture Sensor Probe Application Notes](#) for reference designs and information on how to use the soil moisture probe in larger systems.

## How to Get Started with the Soil Moisture Sensor Probe

The best way to get started is to purchase a few low cost soil moisture sensor probes and try them out in your application.

[Buy Now](#)

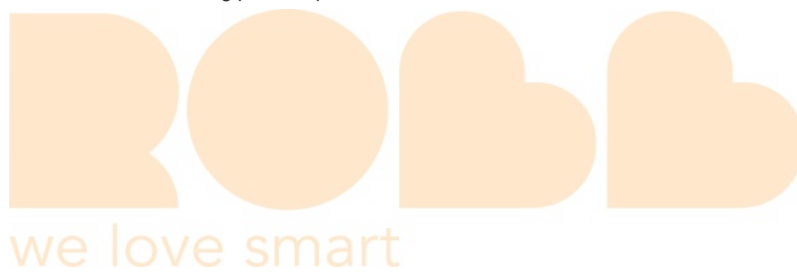
## Usage Tips

- Bury the sensor at root level. Since the sensor takes an average across the blade, for a precise reading at a particular depth, bury it horizontally such that water will not pool up on the blade.
- Many PLC's have a 24V output, which is too high for the VH400 sensor. A resistor voltage divider can be used to drop the voltage in half. To do this, use two 600 ohm 1/4W resistors in series, tied from the 24V to ground. The center of the resistors can be tapped to supply 12V. Note that this is not a very power efficient solution.

## Soil Moisture Sensor Instructional & Promotional Videos

### Soil Moisture tutorial

The Techno Gardener gives a basic tutorial on soil moisture, explaining capillary action, gravitational water, water holding capacity, field capacity, plant available water, and wilting point for plants.



### How To Wire Up a Soil Moisture Sensor

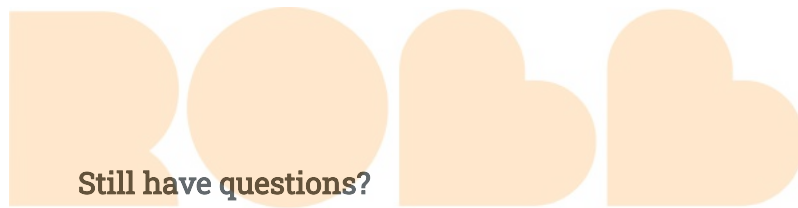
The Techno Gardener shows you how to wire up a Vegetronix soil moisture sensor to a digital multimeter.

### Soil Moisture Sensor as Water Level Sensor

The Techno Gardener demonstrates how a Vegetronix soil moisture sensor can be used as a water level sensor.

## Soil Moisture Sensor Detects Clammy Hands

The Techno Gardener shows you how a Vegetronix soil moisture sensor can also be used to detect the moisture in your hands. It blows away gypsum block sensors with it's instantaneous moisture readings.



**Still have questions?**

See our [VH400 Soil Moisture Sensor Probe FAQ page](#).

[Buy Now](#)