IRROMETER®

SOIL WATER MANAGEMENT

SINCE 1951

IRROMETER THE ORIGINAL NAME IN SOIL WATER MEASUREMENT

> ***For over 70 years, IRROMETER products have been the preferred choice of growers and researchers who require accurate field data to efficiently schedule irrigation. We provide simple, affordable, and reliable solutions for improved yields, increased profits, and conservation of resources.***

MEASURING SOIL WATER

Efficient irrigation improves yields, promotes plant health, and conserves resources.

Soil moisture sensors provide visibility into the root zone, allowing managers to make informed decisions about when and how much to irrigate. While there are many different methods available for estimating irrigation demand, sensors allow for actually measuring it.

Soil water measurement falls into two broad categories:

Volumetric measurement- measuring the percentage of water by volume in a given amount of soil.
Tensiometric measurement- measuring the physical force holding water in the soil, measured in Centibars (or kPa) of soil water tension.

IRROMETER soil moisture measurement is based on the tensiometric method, as the amount of water is less important than how difficult it is for the plant to extract it from the soil. Soil water tension (or matric potential) has to be overcome for the plant to move water into its root system. Different soil types will have different tensions, even at the same volumetric measurement, making volumetric information relative to local conditions and often requiring site calibration for reading equipment. Because we use soil water tension, there is no site calibration required when using our sensors.

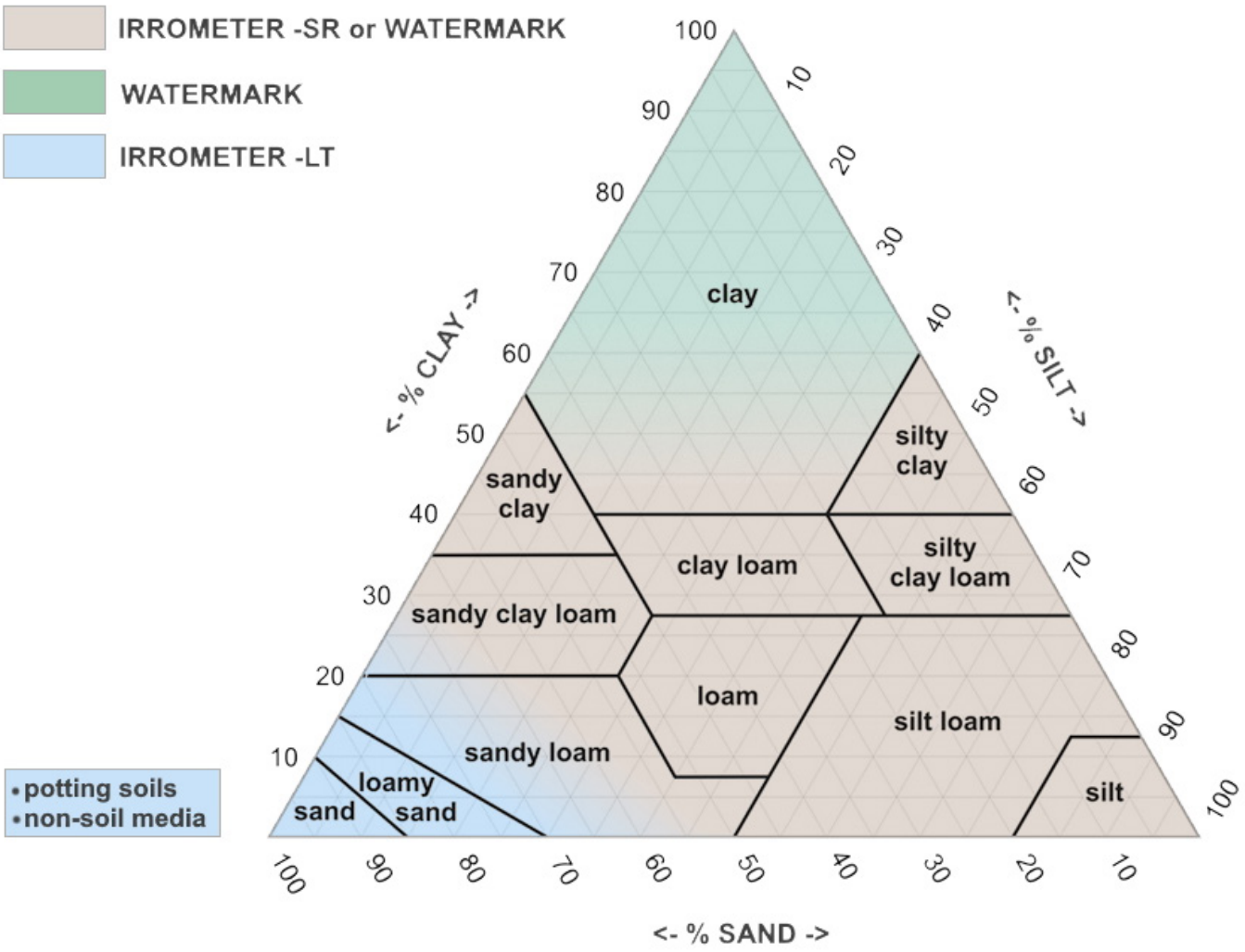
Due to the fact that tensiometers have been used in research since the 1920's and have been commercially available from us since 1951, decades of published research by numerous universities and extension agencies have produced a wide field of reference for recommended tension levels to use with common crops and landscapes.

SELECTING THE RIGHT SENSOR

The following table presents the general characteristics suitable for each sensor type:

PRODUCT	SOIL TYPE	CROP SENSITIVITY	TENSION RANGE
IRROMETER SR	Lighter to Medium	Sensitive to Medium Sensitivity	15 to 75 cb
IRROMETER LT	Non-Soil Media, Amended Soils, Coarse or Sandy	Very Sensitive	5 to 20 cb
WATERMARK	Medium to Heavy	Medium to Tolerant	30 to 200 cb

Selection can also be made referencing a traditional soil-type triangle:



IRROMETER TENSIOMETERS

Since 1951 the IRROMETER Tensiometer has set the standard in accurate soil moisture measurement, offering growers an inexpensive and reliable means of measuring soil moisture for irrigation scheduling.

The IRROMETER acts like an artificial root by exchanging water with the surrounding soil like a plant. It is measuring the soil water tension, which indicates the effort required by root systems to extract water from the soil. This tension creates a change in reading on the gauge, which offers a reliable means of measuring soil moisture for irrigation scheduling. Because the IRROMETER is a true measurement of soil water tension, it is not affected by salinity or temperature and does not require site calibration.

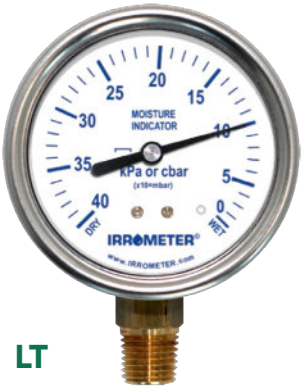
IRROMETER Tensiometers can be read manually, be connected to an in-field data logger, or the readings can be sent wirelessly to the cloud which can then be viewed on any internet connected device.

SR and LT IRROMETERS are available in standard lengths of 6, 12, 18, 24, 36, 48, and 60 inches.

STANDARD

SR

LOW TENSION



LT

MINIATURE LOW TENSION IRROMETER®

The MLT is for use in small containers with very coarse soils and non-soil growing medias with ranges 0-40 (kPa).

WATERMARK SOIL MOISTURE SENSORS

Over the last four decades, the WATERMARK soil moisture sensor has been the preferred choice of growers, irrigation experts, and researchers for providing the most simple, affordable, and reliable measurement of available soil water.

The WATERMARK soil moisture sensor acts like an artificial root, exchanging water with the surrounding soil like a plant. This exchange enables measuring not simply by how much water by percentage is in the soil, but rather how much effort is required by the plant to extract that water from the soil. Measuring this soil water tension provides reliable data for irrigation scheduling, without requiring complicated calibrations for individual sites and different soils.

The sensor can be read manually, be connected to an in-field data logger, or the readings can be sent wirelessly to the cloud which can then be viewed on any internet connected device.

- **Over 40 years of accurate and proven measurements**
- **Requires no site calibration or maintenance**
- **Buffered for salinity**
- **Not damaged by fertilizers, pesticides, or freezing**
- **Built durable and reliable for harsh conditions**
- **Can be read manually, data logged, used in control systems, or directed to the cloud.**

OEM & Sensor Integration Options

The WATERMARK sensor has been a trusted source of soil moisture data for many OEM partners around the globe for decades. Now, adding WATERMARK sensors to your existing data logging devices has never been easier. Our website offers an integration guide to help designers seamlessly integrate the WATERMARK into their reading devices. For other devices which can read standard analog sensors, we offer a series of adapters to allow for manual integrations as well.

READING DEVICES

MANUAL READING

HAND-HELD METER

- One meter reads all WATERMARK sensors
- Clip-on leads for easy reading
- Digital read-out with self-test function
- Manual temperature compensation

AUTOMATIC READING

900M MONITOR

- 8-sensor capacity
- User selectable reading frequency
- In-field display of current readings and downloadable port
- Powered by one 9-volt battery
- Weatherproof enclousre
- WaterGraph Software included

900M SENSOR OPTIONS

- WATERMARK Sensors
- IRROMETER RSU-V
- Soil Temperature Sensor
- Pressure Switch
- Air Temperature Station
- Rain Gauge

WIRELESS READING

IC - 10 SENSOR MONITOR

LTE-M Cellular Direct to Cloud: No other device needed

2+Years Battery Life: Standard “C” batteries

Simple Set Up: No configuration or calibration

Install Anywhere: No height or solar requirement

Frost Alerts: Sent via text message

IC-10 SENSOR OPTIONS

- **WATERMARK Sensors**
- **IRROMETER RSU-V**
- **Soil Temperature Sensor**
- **Pressure Switch**
- **Air Temperature Station**
- **Rain Gauge**

IRROCLOUD SOFTWARE

Data Platform Features:

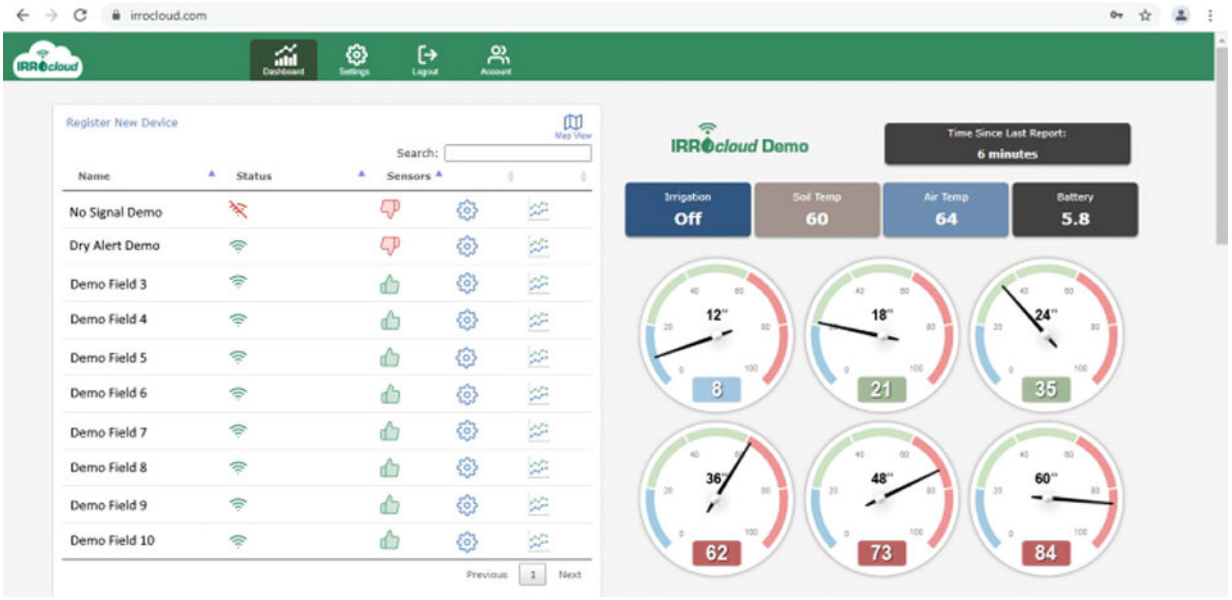
View or Download data- Sensor data available via app from any mobile device or computer. API for data access included.

Quick View Dashboard:

Provides device and sensor status, map, and adjustable threshold gauge panel.

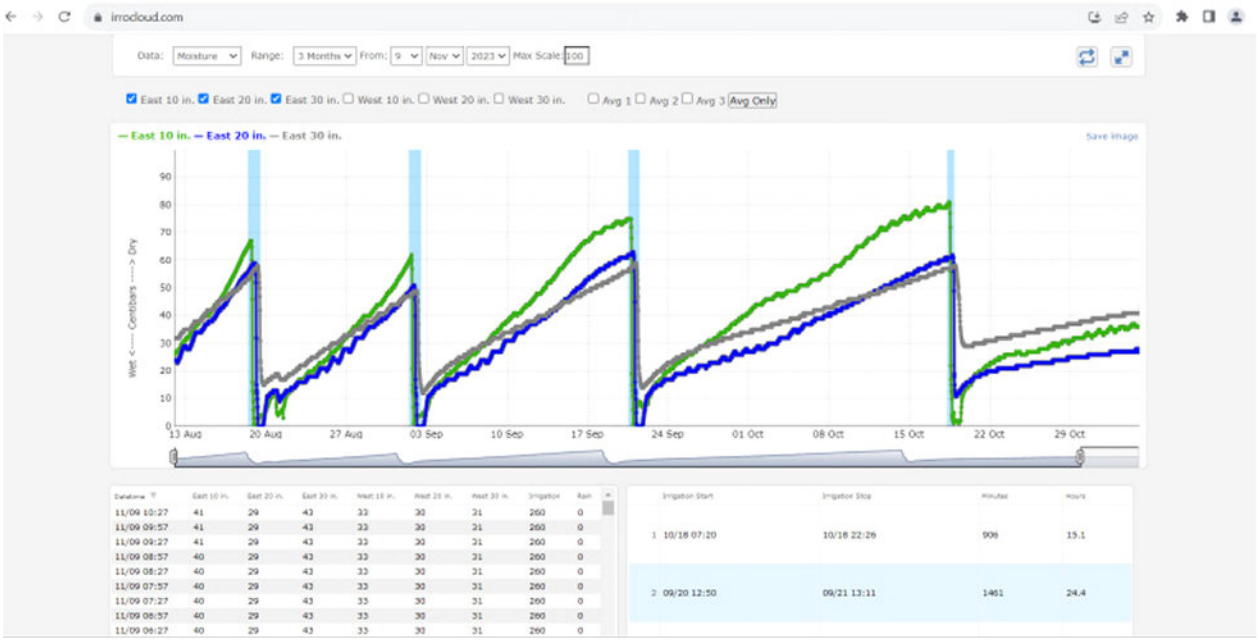
Graphing Suite

For detailed analysis of soil moisture, rainfall, irrigation events, temperatures, and device diagnostic data.



Dashboard Features:

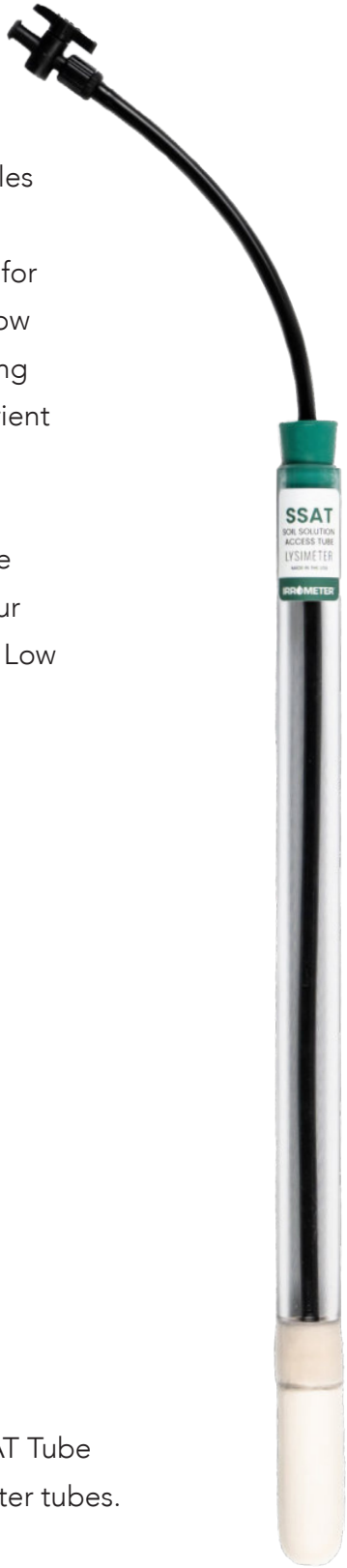
Use the quick view dashboard to effortlessly check the sensor status of multiple fields in either list view or map view, identifying areas that require attention. The user-friendly gauge panel, equipped with customizable soil moisture thresholds, enables a swift assessment of soil moisture levels at various depths in the chosen field. With a single click, access information on soil temperature, air temperature, and the status of irrigation, providing a concise overview of key metrics.



Graphing Suite:

Explore real-time and historical data for any chosen field, allowing for a comprehensive analysis of soil moisture at various depths, soil temperature, irrigation run times, and rain data. View an individual sensor, multiple sensors at once, or average any selected group of sensors together to simplify the decision-making process for more effective irrigation management.

SUCTION LYSIMETERS



Soil Solution Access Tube (SSAT)

The SSAT is a suction lysimeter that allows extraction of soil water samples from various depths for measurement of nitrate levels, salinity, EC, and other chemical elements. When used in conjunction with tissue analysis for calibration, nutrient management practices can be developed which allow the grower to adjust the rate and timing of fertilizer applications, resulting in increased production with decreased fertilizer costs and reduced nutrient leaching.

SSAT's are available in standard lengths between 6" and 60" and include a single suction line, stopper, and stopcock valve. Tip options include our standard 1 bar ceramic tip for use in medium to heavy soils, or with our Low Tension ("LT") ceramic tip for use with lighter soils and potting media.

SSAT Vacuum Pump

A vacuum pump with a stopcock valve connection can be used to create a sufficient vacuum.

Extraction Syringe

Connects with valve to extract soil solution from the SSAT Tube and can also be used to create a partial vacuum on shorter tubes.

PRESSURE GAUGES

Membrane Vented Pressure Gauge - 7MV Series

Membrane vented pressure gauge allows for superior temperature and elevation related compensation while maintaining a dust proof and waterproof environment. This item has a 1.6% accuracy rating across the full scale of the gauge. Features a stainless-steel case, with a durable 2 ½ in. (63mm) polycarbonate face. Connected with a ¼ in. brass standard pipe thread stem (NPT) and integral snubber. Dual scale P.S.I. and kPa faceplate.

Liquid Filled Pressure Gauge - 7LF Series

Glycerin filled for severe service conditions with pulsation and vibrations. Features stainless steel case with durable 2 1/2 in. (63mm) polycarbonate face. Connected with a 1/4 in. brass standard pipe thread stem (NPT) and integral snubber. Dual scale P.S.I. and kPa faceplate.

GAUGE RANGE
psi / kPa
15 psi / 100 kPa
30 psi / 200 kPa
60 psi / 400 kPa
100 psi / 700 kPa
200 psi / 1400 kPa
400 psi / 2800 kPa

LANDSCAPE AUTOMATION

The WATERSWITCH manages irrigation based on soil moisture status by overriding the irrigation controller operation when the soil becomes wetter than the moisture setting. Both AC and DC versions are available. The AC is powered by 24 VAC from your controller and the DC is powered by its own internal 9 volt battery.

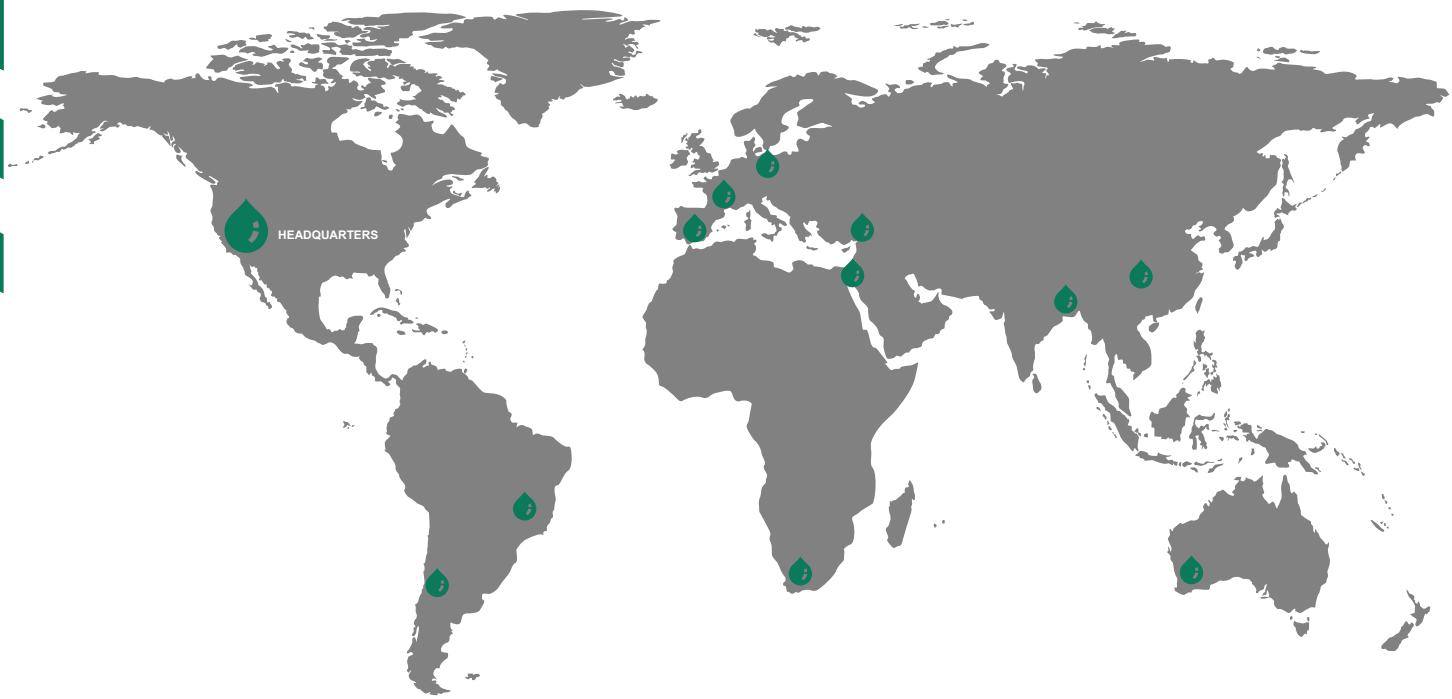
- **Nine selectable moisture level settings**
- **Reads sensor and changes switch accordingly**
- **Status indicator light**
- **Timed bypass**

WaterSense Meets EPA Criteria
Certified by IAPMO R&T

SIMPLE • AFFORDABLE • RELIABLE

These words are the cornerstones of our mission. For over 70 years, we have remained steadfast in providing straightforward solutions that cater to our customers' needs, all while ensuring affordability and reliability.

With a legacy dating back to 1951, our company originated in the heart of California's citrus industry. Today, we proudly support a global network of local dealers, regional master distributors, and OEM partnerships that span over one hundred countries across six continents, showcasing our commitment to growers around the world.



IRROMETER Company Inc. | 1425 Palmyrita Avenue, Riverside, CA 92507 | 951.682.9505