

IRROMETER®



The IRROMETER Model "P" (Portable) was developed to assist the user in determining soil moisture status in temporary monitoring situations. The Instrument measures in centibars (cb) or kilopascals (kPa) of soil water tension. This value represents the energy a plant's root system uses to draw water from the soil. Understanding soil moisture activity helps the user make informed irrigation scheduling decisions. Unlike other model IRROMETERs which are intended for permanent installation, the Model "P" is designed to be installed in a temporary situation so that the user can make a "spot check" of soil water tension and then relocate the instrument to other locations. Each site reading may take from minutes to hours, depending on soil conditions.

Features:

- 0-100 cb (kPa) range gauge
- Air free gauge gives accurate readings
- Large reservoir makes maintenance easy
- Membrane Vented gauge designed for harsh environments
- Chrome plated handle makes frequent installation and removal easy

IRROMETER — Model P

Specifications –

INSTRUMENT BODY:

MATERIALS: Butyrate body, ceramic tip, neoprene stopper

RESERVOIR SECTION DIMENSIONS:

HEIGHT: 6.75 in. (171 mm) – 7.125 in. (181 mm) including cap

DIAMETER: 2 in. (51 mm) – 2.15 in. (55 mm) including cap

BODY TUBE SECTION DIMENSIONS:

HEIGHT: Ranges from 6 in. to 60 in. (15 cm to 150 cm)
(special lengths available)

DIAMETER: .875 in. (22 mm)

INSTRUMENT WEIGHT: 12 in. (30 cm) is 1.62 lb. (.734 kg) with
increases of .252 lb. (.114 kg) per foot

INSERTION HANDLE: Heavy duty chrome plated steel clamped to
instrument body. Handle extends 1.875 in. (48 mm)
above top of cap and is 3 in. (76 mm) at its widest point.

CERAMIC TIP: White tip – used for most soil types

WARRANTY: One year

1008 – Standard Vacuum Gauge

Specifications -

DIAL SIZE: 2.5 in. (63 mm)

CASE: AISI 304 Stainless steel membrane vented case with
IP 67 protection degree

WINDOW: Polycarbonate with EPDM gasket seal,

DIAL: Scale of 0-100 cb (kPa), white with contrasting green markings

ACCURACY: $\pm 3-2-3\%$ of span ASME B40.1 Grade B

MECHANISM: Bronze Bourdon Tube with brass and stainless
steel internals

CONNECTION: Standard 1/4 in. NPT– Brass Bottom Mount

OPERATING TEMPERATURE: -40° to 150° F (-40° to 65° C),
 32° to 150° F (0° to 65° C) for water service

WARRANTY: One year

ORDERING INFORMATION: Catalog #P-2001 — IRROMETER Model P includes reservoir, air-free gauge chamber and membrane vented IRROMETER vacuum gauge with dual scale of centibars (cb) and kilopascals (kPa) [0-100 cb (kPa) range]. Comes complete with insertion handle and 12 in. (30 cm) extension tip (other lengths available).

OPERATING PRINCIPLE: The IRROMETER operates on the tensiometer principle, which measures soil water tension. Soil water tension is the energy (vacuum) applied to soil by the plant as it draws in water for nutrition. This force is measured in centibars (cb) or kilopascals (kPa) of tension with a high reading indicating the dry end of the scale and a low reading indicating the wet end of the scale. The IRROMETER instrument consists of a sealed, fluid filled tube that is equipped with a porous ceramic tip and a special vacuum gauge. They are installed in the ground with the tips placed at desired root zone depths. As the soil dries (increasing tension), fluid is drawn out of the instrument. This reduces the fluid volume in the IRROMETER, thus creating a partial vacuum which is registered on the gauge. The drier the soil, the higher the gauge reading. An irrigation application or rainfall event reverses this action. As water flows back into the soil (and the IRROMETER), tension is relieved in the soil and the instrument, resulting in a lower gauge reading (lower tension). In effect, the instrument is indicating how hard the roots are working. Due to IRROMETER's unique principle of operation, no calibrations are necessary under normal operating conditions for different soil types. A gauge reading of 50 cb (kPa) indicates that the roots are extracting the same amount of moisture whether the crop is planted in sandy soil or clay soil.

APPLICATIONS: Consultants and other irrigation professionals find the Model "P" particularly useful because of its ability to gather soil moisture data from multiple non-permanent test site locations. The rugged T-handle clamped onto the instrument allows operators to easily insert and remove the instrument in most soils. For best results, the Model "P" should be used at a maximum depth of 18 in. (45 cm) in open porous soil. This

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MODEL P

APPLICATIONS – CONTINUED

instrument is particularly useful in shallow rooted vegetables, nursery and greenhouse crops and containerized plants. Permanent installations of conventional model IRROMETERS (SR, LT, MLT) are always advisable, and provide for better long term management of irrigation.

SPECIFICATION INFORMATION: The irrigation system shall incorporate soil moisture indicators to aid in making irrigation scheduling decisions. The soil moisture indicator shall operate on the tensiometer principle and indicate soil water tension, displaying in units of centibars (cb) or kilopascals (kPa). It shall have a membrane vented gauge that remains full of fluid even if the instrument tube is completely drained. Tube shall be constructed of durable plastic, that is impervious to attack by soil chemicals, with a ceramic sensing tip. It shall include a fluid reservoir with a submerged valve, whereby fluid can be drained into the tube by turning the cap. It shall be portable to facilitate measurements at different locations. All ceramic to plastic connections shall be guaranteed leak proof. The soil moisture indicator shall be an IRROMETER Model P as manufactured by the IRROMETER Company, Inc. of Riverside, California.



Membrane Vented Gauge — Accuracy and long life are ensured by a membrane vented cover which keeps dirt and moisture out and compensates for variations in temperature and elevation pressure.

Air-Free Gauge — The water seal prevents air from entering gauge, so gauge and chamber remain full regardless of water level in instrument.

The IRROMETER Body — is constructed of tough durable plastic impervious to attack by soil chemicals or electrolysis.

Rugged Handle — makes installation and removal easy.

Closure — Large cap for easy operation and better control. Cap removes for filling reservoir. Submerged valve gives a positive leak proof seal. Servicing is instantaneous with a twist of the wrist.

Reservoir — holds a reserve supply of fluid sufficient for several irrigation cycles under average operating conditions. Unscrewing cap part way releases air and fills tube to replace fluid lost by the action of drying soil.

Ceramic to Plastic — connections are permanently leak proof.

IRROMETER®

THE IRROMETER COMPANY, INC.

1425 Palmyrita Ave., Riverside, CA 92516

(951) 682-9505 PHONE

(951) 682-9501 FAX

www.IRROMETER.com

sales@IRROMETER.com

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