

# IRROMETER®

*The IRROMETER Model LT (Low Tension) was designed to operate in coarse sandy soils and non-soil growing media. With a range of 0-40 centibars (cb) or kilopascals (kPa), this instrument is for use in situations where tensions above 30 cb (kPa) are rarely expected. Gauge increments of 1 cb (kPa) provide a benefit where finer resolution near saturation is needed. This model instrument is also well suited for conditions where rapidly changing soil moisture conditions need to be observed. The "Quick-Flo" ceramic tip is colored blue for easy identification.*



## IRROMETER — Model LT Specifications –

### INSTRUMENT BODY:

MATERIALS: Butyrate body, ceramic tip, neoprene stopper

### RESERVOIR SECTION DIMENSIONS:

HEIGHT: 4.75 in. (120 mm) – 5.125 in. (130 mm) including cap

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

### BODY TUBE SECTION DIMENSIONS:

LENGTH: Ranges from 6 in. to 36 in. (15 cm to 90 cm)  
(special lengths available)

DIAMETER: .875 in. (22 mm)

INSTRUMENT WEIGHT: 12 in. (30 cm) is .968 lb. (.439 kg) with  
increases of .252 lb. (.114 kg) per foot

CERAMIC TIP: Replaceable threaded tip with O-ring seal.  
Blue tip — used for very coarse soils and  
non-soil growing media

WARRANTY: One year

## 1008-LT – 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 0-40 cb (kPa), white with contrasting blue  
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:  $-40^{\circ}$  to  $150^{\circ}$  F ( $-40^{\circ}$  to  $65^{\circ}$  C),  $32^{\circ}$  to  $150^{\circ}$  F  
( $0^{\circ}$  to  $65^{\circ}$  C) for water service

WARRANTY: One year

### ORDERING

INFORMATION: **Catalog #5 \* — IRROMETER Model LT**

includes reservoir, air-free  
gauge chamber and membrane  
vented IRROMETER vacuum gauge  
with dual scale of centibars (cb) and  
kilopascals (kPa) [0-40 cb (kPa)  
range].

\* 06 = 6" (15 cm)  
12 = 12" (30 cm)  
18 = 18" (45 cm)  
24 = 24" (60 cm)  
36 = 36" (90 cm)

### Features:

- 0-40 cb (kPa) range gauge
- "Quick-Flo" ceramic tip (blue)
- Air-free gauge gives accurate readings
- Large reservoir makes maintenance easy
- IP 67 gauge designed for harsh environments. Has membrane vent for temperature and elevation compensation with improved accuracy

**OPERATING PRINCIPLE:** The IRROMETER operates on the tensiometer principle, which measures soil water tension. Soil water tension is the energy (vacuum) applied to the 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 the IRROMETER's unique principle of operation, no calibrations are necessary under normal operating conditions for different soil types. A gauge reading of 15 cb (kPa) indicates that the roots are extracting the same amount of moisture whether the crop is planted in sandy soil or non-soil growing media.

**APPLICATIONS:** Model LT IRROMETERS can be used for manual measurement and tracking of soil moisture status in coarse sandy soils and growing media. When equipped with optional electronic output and data logging equipment, measurement and tracking can be done automatically. The low tension vacuum gauge on this model can be replaced with electronic measurement options, or automatic switching devices which can activate peripheral equipment at desired soil water tension levels. See the "Automation and Output Options" specifications for more details. The Model LT is the best choice for container media such as peat, bark, sand, perlite and vermiculite. It can also be used in any soil when the moisture is being managed close to field capacity.



## MODEL LT

**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 threaded replaceable "Quick-Flo" 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 designed for maximum accuracy in low tension applications. All ceramic to plastic connections shall be guaranteed leak proof. The soil moisture indicator shall be an IRROMETER Model LT as manufactured by the IRROMETER Company, Inc. of Riverside, California.

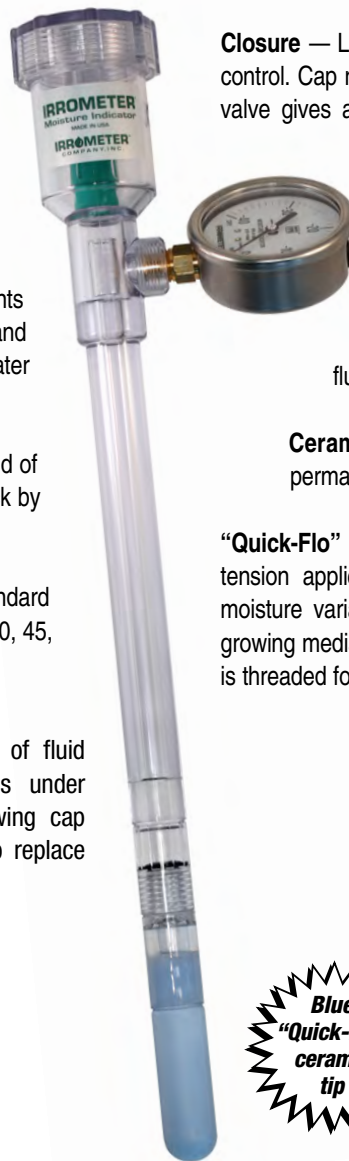
**Membrane Vented Gauge** — Accuracy and long life are ensured by a membrane vented cover which keeps dirt and moisture out and compensates for variations in temperature and elevation pressure.

**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.

**The IRROMETER** — is available in standard lengths of 6, 12, 18, 24, 36 inches (15, 30, 45, 60, 90 cm).

**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.



**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.

**"Quick-Flo" Ceramic Tip** — is designed for low tension applications where quick response to soil moisture variations in very coarse soils or non-soil growing media is needed. Tip has an O-ring seal and is threaded for easy replacement in the field.



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