LI-710 Evapotranspiration Sensor

Accurately measure evapotranspiration with this simplified sensor

- Easy to operate and maintain
- Direct measurements
- Based on established science

Easy operation

The LI-710 Evapotranspiration Sensor gives you answers—no data processing is necessary. From mounting to output, it is designed for ease-of-use.

Mounting

Attach it to a simple pole—no tower or tripod needed—and it is compatible with NuRail® and other commonly used mounting hardware.

Output

SDI-12 output from a single cable makes it easy to collect data and integrate the sensor into existing infrastructures.

Power

Its 1.5 W power requirement means you only need a battery and small solar panel to run it.

Maintenance

It requires no calibration and is low maintenance.

Actual evapotranspiration measurements

The direct measurement of evapotranspiration hasn't been widely used because of the cost and complexity of traditional measurement methods. Indirect methods rely on estimates based on crop coefficients and reference or potential evapotranspiration, which leads to uncertainty.

The LI-710 measures actual evapotranspiration—water vapor moving out of the field and into the atmosphere—without the need for crop coefficients. It works over any relatively flat and uniform ground cover at field or ecosystem scale.

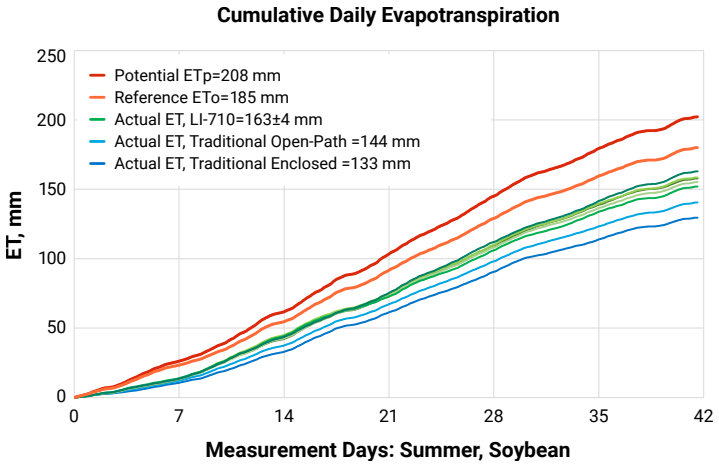
Applications

Use the LI-710 Evapotranspiration Sensor to accurately quantify evapotranspiration for:

- Irrigation management
- Drought monitoring
- Weather stations
- Water budgeting
- Verification of remote sensing
- Regulatory oversight
- Watershed management

Research-grade accuracy

The LI-710 applies the eddy covariance method to measure vertical wind and water vapor concentration at 10 Hz, then provides fully processed results every 30 minutes.



A comparison of the LI-710 to traditional eddy covariance and Penman-Monteith Estimates shows that the LI-710 reports evapotranspiration with the accuracy of traditional eddy covariance.

A high-quality, cost-effective solution

With the LI-710, you get high-quality evapotranspiration measurements for a fraction of the cost of more complex direct measurement methods. You can deploy multiple sensors to expand your data collection footprint. You don't need to hire a data analyst, and it has low ongoing power and maintenance costs.

Specifications

Instrument Specifications

Temperature and Humidity
- **Storage:** -20 – 60 °C; up to 85% RH
- **Operating:** -20 – 50 °C; up to 85% RH
- **Calibrated Measurement Range:** +5 – 50 °C; up to 85% RH

Operating Pressure Range: 50 – 110 kPa
Inlet Flow Rate: 230 cm³/min (typical)
Communication: SDI-12
Power Requirements:
- **Voltage:** 9-33 V
- **Power:** ≤ 1.5 W nominally; up to 26.4 W for 20 milliseconds during startup

Weight: 1.4 kg
Dimensions: 58 x 17.5 x 7.7 cm (H × L × W)
Mount: 1 inch (2.54 cm) diameter post; compatible with 1 inch (2.54 cm) crossover fittings
Weatherproof Rating: Tested to IEC IP54
Measurements
- **H_2O Mole Fraction Range:** 0 - 60 mmol/mol
- **H_2O Mole Fraction Accuracy:** 2% of reading at > 5 mmol/mol
- **Ambient Temperature Accuracy:** ±1.5 °C
- **Ambient Pressure Accuracy:** ±0.2 kPa

Installation Requirements
- **Separation Between LI-710s:** ≥2 meters
- **Mounting Height:** >2 meters above the plant canopy

Output Variables

Variable	Description
ET	Actual Evapotranspiration (mm)
LE	Latent Energy Flux (W/m²)
H	Sensible Heat Flux (W/m²)
VPD	Vapor Pressure Deficit (kPa)
Pa	Atmospheric Pressure (kPa)
Ta	Air Temperature (°C)
RH	Relative Humidity Ambient (%)
AH	Absolute Humidity Ambient (g/m³)
SVP	Saturated Vapor Pressure Ambient (kPa)
Td	Dewpoint (°C)

Specifications subject to change without notice.

About LI-COR

LI-COR Environmental is a leading technology innovator for plant physiology, ecosystem, soil, light, water, wind, and greenhouse gas monitoring research.

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