Portable Ethylene Sampling Instrument

PRODUCT AND FEATURES: ETH-1010N/ECO-1010

- Real-time measurement of ethylene down to few ppb
- High selectivity to ethylene with limited cross sensitivity
- 0-100% RH operation
- Compact, hand-held and field portable
- Built-in temperature and humidity sensors
- Rechargeable battery up to 24 hrs of continuous operation
- SD card data storage and transfer to laptop or mobile device
- Internal data logging and storage
- Bluetooth or 4-20 mA interface options
- ECO-1010 includes CO₂ and O₂ Sensors
- Optional FASense data display software

POTENTIAL APPLICATIONS

- Postharvest CA storage room monitoring for control (e.g., Kiwifruit, Apple, Pear, Avocado, Melons, Passion Fruit, Mangos)
- Fruit ripening room ethylene control
- Single fruit ripeness indicator
- General gas sensing

TECHNOLOGY

Our ETH-1010N device provides accurate, real-time measure of ethylene (C₂H₄) gas, in a compact instrument suitable for field and laboratory use. The core of the instrument is a proprietary, patented nanoporous gold sensor that offers unmatched sensitivity to ethylene, at levels of 10 ppb in air. ETH-1010N has been designed for researchers and scientists working with growers, storage facility owners/operators, and fruit logistics companies to understand and highlight the impact of ethylene on their product quality, shelf-life, and marketability.

ETHYLENE MEASUREMENT PERFORMANCE


Using ETH-1010N, continuous sampling of the respiration or breathing rate of a single or several apples, pears or avocados placed in a jar is possible (See Figure from Blanke, M., 2008, “A portable, high resolution ethylene detector based on new sensor technology,” Erwerbs-Obstbau, 50:77, 84). It is important to know the ethylene production rate of fruit prior to and during CA storage. For example, late harvest apples may produce too high of ethylene (e.g. ≥1 μl kg⁻¹ h⁻¹ in CA conditions) to provide long term storability.

www.fluid-analytics.com
sales@fluid-analytics.com
TECHNICAL SPECIFICATIONS (ETH-1010N)*

Dimensions 8.5" W x 10" D x 6" H (22cm W x 25cm D x 15cm H)
Sensor type Electrocatlytic
Weight 5 lb (2.2 kg)
Enclosure Anodized/Painted Aluminum
Air sampling rate Default 150 ml/min (Adjustable from 75 to 300 mL/min at Customer Request)
Sampling rate User adjustable: 1 per minute to 1 per day
Measurement Range and Resolution Ethylene: 0–100 ppm ± 0.01 ppm (Auto ranging option)
Options: CO₂: 0-20% ± 0.1 %; O₂: 0-100% ± 1%
Measurement Accuracy Ethylene: ±0.1% of full scale
Options: CO₂: ± 5% of reading; O₂: ± 1% of full scale
Power Input 5 VDC, 750 mA (110-240 AC Outlet Power)
Battery 8,000 mAh Rechargeable Li-Polymer (tested up to 24 hr continuous operation before “low battery” warning)
Operating environment 0°C to 45°C (32°F to 113°F)
10-100% Relative humidity
Display Graphical color LCD with backlight adjustment
Data logging Internal storage for >10,000 data points; Built-in SD Memory Card storage; Optional software for offline data storage and analysis; Networking: Ethernet, USB, and optional 4-20mA or Bluetooth connection; Export to spreadsheet.
Warm-up time Minimum of 10 minutes and up to 1 hour recommended
Air sampling ports Quick connects standard on inlet and outlet.

* Specifications subject to change.

ORDERING INFORMATION

ETH-1010N Ethylene sensor with built-in temp and humidity sensors. Includes, internal data storage, SD Memory Card and maintenance kit
ETH-CAL Calibration kit
ETH-SOFT Optional FASeNSE Data display software
ETH-CASE Ethylene sensor carrying case
ETH-Sampling Optional sampling kit that includes a hermetically sealed box with syringe and sampling bag that can be used for measurement of the respiration rate (ethylene, CO₂ and O₂) of fruit placed inside the box. It also allows manual calibration of the device.
EzcAL Auto-calibration system allowing user to have a hassle-free calibrated system on a user-designation schedule.

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