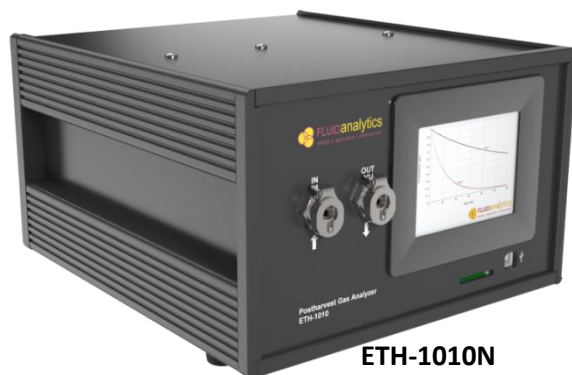


Portable Ethylene Sampling Instrument

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

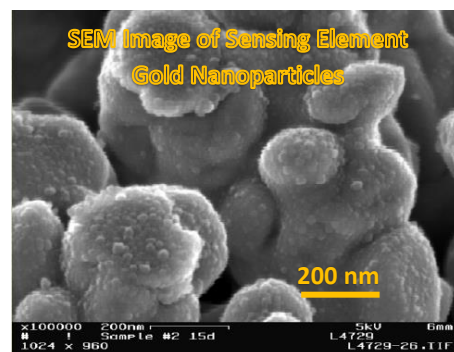


POTENTIAL APPLICATIONS

- 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.

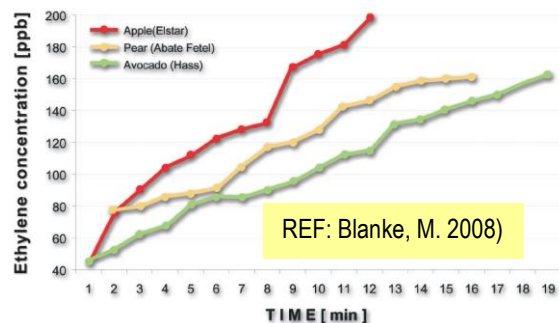


ETHYLENE MEASUREMENT PERFORMANCE

The analyzer provides extremely linear response at low ethylene concentrations of below 10 ppm. This linearity is critical for simple calibration and measurement over a wide range of concentrations (Reference: Shekarriz R. and W.L. Allen, 2008, "Nanoporous Gold Electrocatalysis for Ethylene Monitoring and Control," *Europ. J. Hort. Sci.*, 73 (4), pp. 171-176).

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. $\geq 1 \mu\text{L kg}^{-1} \text{h}^{-1}$ in CA conditions) to provide long term storability.

ETHYLENE PRODUCTION RATE MEASUREMENT



TECHNICAL SPECIFICATIONS (ETH-1010N)*

Dimensions	8.5" W x 10" D x 6" H (22cm W x 25cm D x 15cm H)
Sensor type	Electrocatalytic
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 \pm 0.01 ppm (Auto ranging option) Options: CO ₂ : 0-20% \pm 0.1 %; O ₂ : 0-100% \pm 1%
Measurement Accuracy	Ethylene: \pm 0.1% of full scale Options: CO ₂ : \pm 5% of reading; O ₂ : \pm 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, CO ₂ and O ₂) 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.