ETH-1010N
Ethylene Atmosphere Sampling Instrument

The ETH-1010N analyser provides accurate real-time measurement of ethylene gas concentrations, in a compact instrument suitable for field and laboratory use.

Ethylene is a plant hormone produced by trees, plants, fruits, and vegetables, in response to stress, and during ripening and maturity. Measurements of ethylene gas present in the air have been used as an agricultural diagnostic tool for many decades.

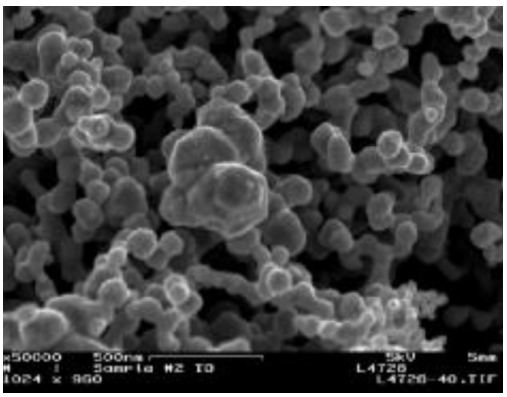
However, in the past, sensitive ethylene measurements were available only to expert users: primarily laboratory researchers and scientific equipment technicians. ETH-1010N has been designed for growers, storage facility owners, operators, and researchers alike, to increase the value of their products and services.

The ETH-1010N sensor uses a unique, patented nanoporous gold electrocatalytic sensing element, distinct from standard electrochemical sensors offered by others, to sniff out ethylene gas with the following benefits:

- True low parts-per-billion (ppb) detection;
- No interference from gases normally encountered in postharvest applications or in the laboratory;
- Fast response time (both rise and fall time), making it the only instrument suitable for high throughput, breeding studies.

Features

- Real-time measurement
- High sensitivity down to few ppb for ethylene
- High selectivity to ethylene with little to no cross sensitivity
- Built in sampling pump
- Quick connections for air inlet and outlet
- User adjustable sampling rate
- Compact and portable
- Internal data logging and storage
- Virtual COM Port communication via USB connection
- SD card data storage and transfer
- Rechargeable battery
- Front panel display with status indicator
- Optional FASense data display software
- Optional analog output



Potential Applications

- Postharvest CA storage room monitoring for control (Kiwifruit, Apple, Pear, Avocado, Melons, Banana, Passion Fruit, etc.)
- Refrigerated shipping containers monitoring
- Fruit ripening room ethylene control
- Single fruit ripeness indicator
- General gas sensing

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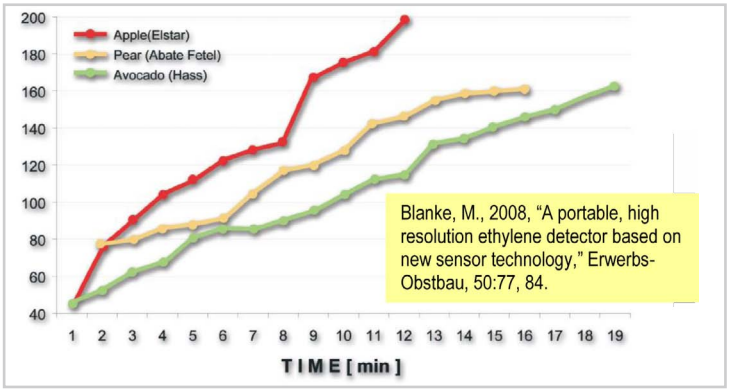
FreshView
POST HARVEST TECHNOLOGY SOLUTIONS

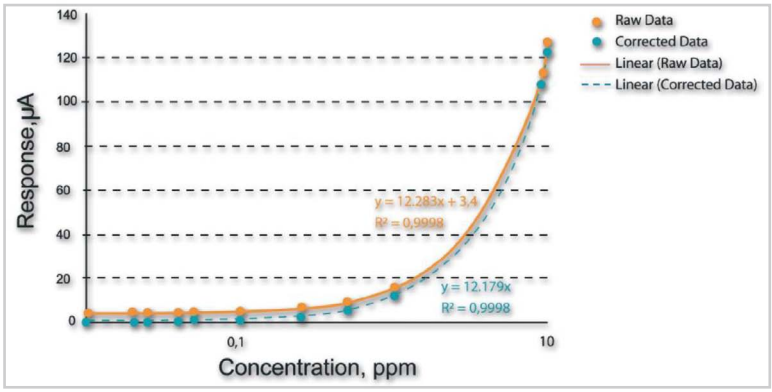
Ethylene Measurement Performance



Continuous sampling from a jar containing a single apple, pear or avocado is possible for measurement of the rate of production of ethylene (breathing rate).

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) toprovide long term storability. ETH-1010N provides the accuracy and a real time response necessary to providemeasurements in a CA room, in the field, or in a laboratory environment.



The analyser 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).

Technical Data

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 10 to 300 mL/min at Customer Request)
Sampling rate	User adjustable: 1 per minute to 1 per day
Measurement Range	Ethylene: 0–10 ppm ± 0.01 ppm (Auto ranging option)
and Resolution	CO2: 0-20% ± 0.1 %
Measurement Accuracy	Ethylene: ±5% of reading
	CO2: ± 0.1 % of full scale
Power Input	5 VDC, 750 mA (110-240 AC Outlet Power)
Battery	8,000 mAh Rechargeable Li-Polymer (tested up to 16 hr continuous operation before "low battery" warning)
Operating environment	5°C to 40°C (40°F to 115°F)
	0-90% 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 Wi-Fi and 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. Includes, internal data storage, SD Memory Card
ETH-CO2	Optional Built-in CO2 Sensor
ETH-O2	Optional Built-in Oxygen Sensor
ETH-CAL	Calibration kit
ETH-SOFT	Optional FASense Data display software
ETH-CASE	Ethylene sensor carrying case
ETH-CALKITOP	Optional calibration kit that includes a hermetically sealed box with syringe and sampling bag, which allows manual calibration of the device. This system can also be used for measurement of the respiration rate (ethylene and CO2) of fruit placed inside the box.
EZCAL	Auto-calibration system allowing user to have a hassle-free calibrated system on a user-designation schedule.

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