

VS-1000AC Series Inline Acid Sensors for Real-Time Concentration Measurement



Inline Networked Smart Infrared Sensors for Real-Time Process Monitoring of Total Organic Acids



VitalSensors Technologies LLC is an applications specific spectroscopy company that designs, manufactures and markets a family of leadership **Inline Networked Smart Infrared Sensors** for real-time process control. VitalSensors' products are used by Beverage, Food and Petrochemical industries worldwide.

VitalSensors' VS-1000 Series of sensors are the next generation of process sensors. They combine smart spectrometer solid state technology with state of the art networking and software in a compact form factor that fits in the palm of the user's hand. The VS-1000 Series sensors have been designed to be implemented inline in a process stream for direct real-time 24x7 measurements and thus can be used to make analyses in situ.

The VS-1000AC Acid Sensor System measures organic acids - total acidity real-time. The control of aqueous solutions is an important determinant

of product quality in food and beverage production. The VS-1000AC sensors measure acid concentrations that include citric, phosphoric, malic, lactic, quinic, and fumaric among others. The sensor provides QC/QA professionals with a true infrared measurement of acid concentration versus time consuming pH meters or lab titration indirect methods.

The complete sensor system weighs less than 20 lbs (9.07 kg) and is straight forward to install. No maintenance is required.

APPLICATIONS:

- Measuring acids in soda production
- Measuring acids in juice production
- Measuring acids during fermentation
- Optimizing product yields
- Good food manufacturing practice

VS-1000AC Acid Sensor Product Specifications

System includes inline sensor, connection cable, local display and Windows™ based software for monitoring and setup

Application-Dissolved	Organic Acid
Measuring Method	Mid Infrared spectrometer with Attenuated Total Reflectance (ATR) sampling
Measuring Range	0 – 5 w/w % standard 0-100 w/w % customizable
Accuracy	± .005 w/w %
Resolution	.01 w/w %
Repeatability (8 hour test)	.008 w/w
Measuring Interval	100 ms
Data Output Interval	500 ms to 30s (user defined)
Operating Process Temperature	-2°C to +85°C (+28.4°F to 185°F) in 40°C (104°F) process temperature spans Extended temperature models available to 120°C (248°F)
Temperature Display Range	-5°C to +85°C (+23°F to 185°F)
Maximum CIP Temperature	+85°C (+185°F) Extended temperature option available
Maximum Line Pressure	10 bar (150 psi)
Process Connection	Tuchenhagen Varinline® connection fitting (DN65)
Dimensions (Sensor)	82.6mm (3.25 in) W x 82.6mm (3.25 in) H x 82.6mm (3.25 in) D
Sensor Materials	316 stainless steel, Sapphire crystal, virgin PEEK, FDA gasket
Shock Resistance	100G ½ sine wave or 6 foot drop on concrete

Operator Interface - VS-300 Sensor Management Station

Display	Concentration and Temperature on two-line VFD display
Cable (Distance to Sensor)	4.6m (15 ft.)
Analog I/O	4-20mA (optional)
Fieldbus Interfaces	Ethernet, EtherNet/IP (optional), Profibus PA (optional)
Power	120/240 VAC, 50-60 Hz (auto sensing)
Dimensions (WxHxD VS-300 SMS)	222.3mm (8.75in) W x 290.8mm (11.5 in) H x 139.7mm (5.5 in) D
Enclosure	IP65 (NEMA4)
Ambient Temperature	-5°C to +40°C (+23°F to 104°F)
Shipping Weight (Total System)	9.07 kg (20 lbs)
Approvals	CE, FCC, VCCI Class A, AS/NZS Class A

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