

IsoMon.

Dual channel, low and high range gas monitor for Hydrogen Peroxide (H₂O₂).



ATI's IsoMon dual-channel gas detection system is specifically designed for monitoring complete decontamination cycles from start to finish, in isolators or other chambers, using hydrogen peroxide sterilisation (H₂O₂).

This unique system was primarily developed to address the needs of the medical and pharmaceutical industries, but can also be used within food packaging, biological, defence and industrial settings.

IsoMon is a first-of-its-kind gas detector that allows both high and low value measurement of hydrogen peroxide levels, providing users with reliable validation data regarding the sterilisation of aseptic environments.

The instrument is designed to pull samples from an enclosed space, delivering them to two separate measuring cells, one for high concentration and the other for low concentration.

Hydrogen Peroxide Gas

ATI are one of the only gas sensor companies in the world that manufacture an accurate sensor that can be used to protect staff. H₂O₂ is released into the air during the decontamination process (fogging) and should be monitored as part of Quality Controls Programs.

Rooms, surfaces and equipment can be sterilised multiple times per day with higher levels of H₂O₂ than ever before, increasing the risk to those working close to them.

Monitoring H₂O₂ levels enables you to ensure sterile levels subsequently drop to safe, ambient levels post sterilisation. This continuous monitoring allows you to validate and demonstrate that the vapour in the air is safe, posing no risk to staff and patients.

Generating the right amount of gas is vital for efficacy over prolonged periods. It is therefore essential to understand and accurately monitor H₂O₂ levels with a pre-calibrated monitor.

How does it work?

The IsoMon monitoring system draws the sample through Teflon® lined tubing, using an internal two-channel sample pump, with each pump head providing flow to a separate sensor. A common sample inlet port is provided, but an integral solenoid valve controls sample delivery to the low-concentration sensor. The solenoid valve is controlled by the high-concentration monitor to avoid saturation of the low-concentration sensor. The solenoid is activated when the measured value on the high concentration sensor reaches 30ppm and will reset at 28ppm. When the solenoid switches, ambient air is drawn into the low-concentration unit to insure that it is ready to operate when gas or vapour levels fall back to a lower level. This is done to ensure that the low level sensor is not saturated by long exposure at high concentration. The high-concentration measuring channel can measure to a maximum of 2000ppm. However, it is possible to set the data logging and analog output range to a smaller, full-scale value.

As shipped from the factory, the high-concentration channel will be programmed for a logging range of 0-1000ppm. With this adjustment, the display will indicate values up to 2000ppm, but the internal data logger will not log values above 1000ppm. This is done to improve data-logger resolution when the instrument is measuring at lower levels. The low-concentration channel has a maximum measuring value of 200ppm, but is set for a logging range of 0-20ppm as the default.

As with the high-concentration channel, the low-concentration channel can be programmed for any full-scale logging range within the limits of the sensor.



The ATi H10 smart sensor

The sensor used for hydrogen peroxide monitoring is the ATi H-Series smart sensor with integral memory. The sensor contains calibration data, specific only to the sensor, and can easily be returned to ATi for recalibration. This eliminates the need for users to set up special calibration equipment. Standby sensors with up-to-date calibrations can be quickly inserted into the individual channels when installed.

Data logging of concentrations is done in each measuring channel separately. The accumulated data may be downloaded to a PC using the RS-232 connection. Data is transferred to files for use in Microsoft Excel or other data handling programs. Data intervals of 1 second up to 60 seconds may be selected, with data storage from 11 days to more than 400 days depending on the storage interval. While the IsoMon is a transportable device designed for use in a variety of locations, external power is required to operate the monitor.

COSHH Assessment

'The Control of Substances Hazardous to Health Regulations 2002 (COSHH) requires employers to prevent or control exposure to hazardous substances. Where exposure cannot be prevented, employers are required to assess the risk to health and provide adequate control measures when using hazardous chemicals'

Health and Safety Executive

Specification

Gas Type:

Channel 1 – Hydrogen Peroxide, 0-2000 PPM
Channel 2 – Hydrogen Peroxide, 0-100 PPM

Sensor Type:

Electrochemical

Response Time:

90% in 60 seconds

Accuracy:

Generally $\pm 10\%$ of value, but limited by available calibration gas accuracy

Repeatability:

± 20 PPM on 0-2000 range
 ± 1 PPM on 0-100 range

Electronic Linearity:

$\pm 0.5\%$

Zero Drift:

Less than 1% full scale per month, non-cumulative

Display:

Backlit graphics liquid crystal display

Outputs:

Two RS-232 outputs for stored gas values
Two 4-20 mA DC analog outputs for remote display

Memory:

12,000 data points per measuring channel

Storage Interval:

Programmable for 1, 2, 3, 4, 5, 6, 10, 12, 15, 30, or 60 seconds

Typical Capacity:

8 Days at 1-minute storage interval

Alarms:

Three concentration alarms with adjustable setpoints per channel. Alarms may be set for high, low, or off. (Default is OFF). Alarms displayed on LCD and indicated by audible beeper

Power:

120 VAC or 230 VAC VAC

Operating Temp:

-5° to $+45^{\circ}$ C

Humidity:

0-95% Non-condensing

Weight:

10 lbs (4.5 Kg)