

DESCRIPTION

The Sensor Pack monitors multiple air quality parameters across 16 zones, independently reporting on each. Each sensor pack contains sensors for air velocity, temperature, humidity, and pressure. With a reference to clean air, it cancels sensor drift, ensuring more accurate and consistent data compared to standard wall-mounted solutions. All required sensors for a specific application are pre-installed in one sensor pack, making calibration effortless through a tool-free replacement process.



WHY

Monitoring ammonia levels in vivariums is essential for maintaining animal health, ensuring a safe and healthy environment for both animals and staff, preserving research integrity, and complying with regulatory standards for animal care and welfare. In addition to safety and compliance, there is an opportunity to save energy. While the correlation between monitoring ammonia levels and energy savings might not be direct, the indirect benefits lie in maintaining efficient ventilation, and optimizing overall system performance. These factors collectively contribute to a more energy-efficient operation of the vivarium facility.

Health and Wellness: Ammonia can be harmful to animals, particularly in enclosed spaces like vivariums. Monitoring helps ensure that ammonia levels remain within safe limits to prevent respiratory issues and other health problems in the animals housed within. High levels of ammonia can also affect the health of vivarium staff and researchers working in these facilities. Regular monitoring helps protect the health and well-being of personnel by ensuring a safe working environment.

Environmental Conditions: Ammonia can arise from animal waste and urine. Monitoring levels helps assess the cleanliness of the vivarium and the effectiveness of ventilation systems. It ensures proper waste management and ventilation, creating a healthier environment for the animals.

Optimizing Ventilation: Ammonia levels can indicate the efficiency of ventilation systems. Monitoring allows for adjustments in ventilation rates to maintain safe levels of ammonia. By optimizing ventilation based on accurate measurements, energy consumption can be managed more efficiently.

Research Integrity: In research settings within vivariums, maintaining controlled and consistent environmental conditions is critical for accurate scientific outcomes. Monitoring ammonia levels helps uphold these conditions, ensuring the reliability and reproducibility of research data.

Regulatory Compliance: Many animal care guidelines and regulations stipulate acceptable ammonia levels in vivariums. Monitoring ensures compliance with these standards, preventing regulatory issues and ensuring the well-being of the animals and staff.

HOW IT WORKS

The sensor uses a liquid polymer electrochemical technology which is based on the principle of electrochemical catalytic reaction caused by the target gas. This reaction leads to an electrical signal that is directly proportional to the gas concentration. The sensor is composed of three catalytic electrodes, a liquid electrolyte, and gas diffusion holes. The gas reaches the working electrode of the sensor through the diffusion holes, an electrochemical redox reaction occurs on the porous micro-surface of the electrode, the liquid electrolyte conducts electron transfer, and generates a current signal as an output. The current signal is used to characterize the gas concentration.

SPECIFICATIONS

Parameter	Value	Units
Technology	ElectroChemical	
Range	0–100	ppm
Humidity Range	15–95	%
Resolution	0.1	ppm
Accuracy	± 5	% (FS)
Response ¹	50	s
Recovery ¹	50	s
Overload	100	ppm
Calibration	1	Year(s)

1. T90

CROSS SENSITIVITY

Gas ¹	Formula	Concentration (ppm)	Response (ppm)
Carbon Dioxide	CO ₂	5000	0
Carbon Monoxide	CO	100	0
Chlorine	Cl ₂	1	0
Hydrogen	H ₂	100	0
Hydrogen Sulfide	H ₂ S	50	0
Arsine	AsH ₃	0.2	0
Hydrogen Chloride	HCl	5	0
Nitrogen Dioxide	NO ₂	10	0
Sulfur Dioxide	SO ₂	20	0

1. Table is not complete for all gases, and the sensor may be sensitive to other gases