8500/9500 Nitrosave Oxygen Control System

SYSTECH Illinois

Save up to 50% in nitrogen running costs with the Nitrosave oxygen control system

Curing ovens & furnaces
Food packaging lines

Flow soldering
Nitrogen purge systems

Glove boxes

Features & Benefits

- Save on nitrogen usage and rework costs.
- Improve process control and product quality.
- Automatically detects a halt in production and reduces nitrogen flow for even greater savings.
- Extremely fast response time even after high oxygen exursions means quicker process optimisation.
- Nitrosave Viewer PC software makes set up quick and easy.
- USB and RS485 communications output for data logging can document the whole process.
- Small footprint allows OEM manufacturers to install inside their machines.

Conforms to European Directives:
Electromagnetic Compatibility Directive 2004/108/EC Low Voltage Directive 73/23/EEC

Save Nitrogen and Improve Process Control

Nitrosave

Nitrosave consists of the oxygen monitor/control unit and a proportional or other control valve which is fitted into the nitrogen supply line to the machine.

Nitrosave monitors the residual oxygen in the system under control using Systech Illinois' latest cell technology. The oxygen measurement is then used together with a fuzzy logic control algorithm and user-defined set points for desired oxygen level, to automatically control the opening of the valve, which regulates the flow of nitrogen into the machine.

This ensures enough nitrogen to comfortably maintain the desired oxygen level is fed into the machine but eliminates the waste seen with fixed-flow nitrogen systems.

Installation of the Nitrosave is very simple and it can be retrofitted to almost all types of machines.

Once in place, setting up the control system is straight forward and can be done when the machine is in production. It is always possible to revert to manual control and the system will automatically select maximum flow in the event of a fault.

Nitrogen is used in soldering and other controlled atmosphere machines to remove oxygen which results in better production quality, however, nitrogen can be expensive.

Systech Illinois' long expertise in the field of Gas Analysis led to the development (in partnership with major soldering machine manufacturers) of the Nitrosave, designed to reduce the nitrogen consumption of your machine.

The Nitrosave oxygen control system can be easily transferred to other inerted machines. Whether you have a small wave machine or large reflow system, the savings with Nitrosave are considerable. With nitrogen reductions of up to 50%, the payback time for the system is very short, with the added benefits of improvements in process control and full traceability.

Control Valves

Various sizes, types, flow rates and connections to suit every machine. Allows control of main nitrogen flow or specific zones in the machine.

Outputs & Alarm

For data logging, chart recorders and remote monitoring

- USB and RS485
- 4-20mA/0-20mA
- 2 high / low alarms
- Fault alarm

Doping Systems

Mass Flow controlled, or other, doping for control at high oxygen levels (500ppm+). Ideal when soldering BGA components.

Operator Interface

- User-friendly menu
- Setpoints & alarm settings
- Control configuration
- Read only mode

Nitrosave Viewer

Datalogging is simple with the provided Nitrosave Viewer program. This allows a log of a number of machine parameters (including oxygen level and valve opening) to be made. The data is stored as a text file which can be easily manipulated and displayed graphically using spreadsheet programs.

Photoswitch PCB Detector

Automatically detects a halt in production and reduces nitrogen flow for even greater savings.

Technologies

Depending on your application requirement there are 2 technologies to choose from; the 8500 zirconia cell or the 9500 electrochemical cell.

Principle of Operation

The 8500 oxygen detection cell is a high purity, high density, stabilised zirconia ceramic. The sensor produces a voltage signal relative to the oxygen concentration of the sample gas stream. The cell's logarithmic output is converted and linearised by a high speed microprocessor to provide a direct digital readout on the instrument's LED display.

The 9500 uses the patented RACE sensor*. A unique electrochemical cell which responds in seconds even to large changes in oxygen levels and is unaffected by solvent vapours or hydrocarbons making it ideal for use in systems where high oxygen events are common.

Oxygen measurements can be made across the full range normally found in a soldering oven, without delays due to the purging of the measurement system or sample lines. The high speed of the cell ensures a very rapid start up response and accurate monitoring of changes in the machine atmosphere during production.

The RACE™ sensor has a 3 year limited guarantee, is maintenance-free and requires infrequent calibration.

* UK Patent no. 2324870
USA Patent no. 5929318

8500/9500 - Nitrosave Oxygen Control System

Bench/Panel Mount
190H x 237W x 410D (mm)
8.4 kg

IP66/NEMA 4X
Wall Mount/Weatherproof
460H x 380W x 160D (mm)
15.5kg

Rack Mount 4U - 19 inch
Houses 1 or 2 Analysers
178H x 484W x 410D (mm)
9.7kg (single unit)

Technical Specifications

Sensor Type	Dependent on Application
Ranges	0.01ppm - 100% O_2 Autoranging
Accuracy	Dependent on measurement method
Measuring Cell Type	Electrochemical or Zirconia solid state, dependent on application.
Communications	USB and RS485
Alarms	2 programmable changeover contacts, rated 240V 3A 1 fault alarm, changeover contact, rated 240V 3A
Analogue Outputs	2 scaleable 4-20mA, 0-20mA, all isolated. 1 for control valve.

Operating Conditions

Sample Connections	1/8 inch O/D compression
Ambient Temperature	-5 to 50°C (23° to 122°F)
Sample Gas Flow Rate	100 -300 ml/min (internal pump)
Power	230/110 VAC selectable, 80VA

Options

Product Sensor	Detects halt in production, software can engage new set points.
Valve Options	Flow rates dependent on oven. Contact Systech Illinois for more information.
MFC Doping Option	Air injection systems.

Systech Illinois have over 30 years experience of providing analysis solutions for a wide range of industries. From our manufacturing plants in the UK and U.S. we produce gas analysers for industrial process industries, headspace analysers for monitoring gas flushing of food products, and our range of permeation analysers.

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