

OXYTRON 2000™ O₂ ANALYZER

PRODUCT DATA SHEET – 404

Oxygen monitoring system (OMS)
For process O₂ monitoring and inert gas control

Introduction

The Oxytron 2000 is a custom-configured instrument designed to automatically control oxygen in process applications. When combined with a properly designed sample conditioning package, the Oxytron 2000 provides reliable measurement and control of oxygen, keeping it at a safe level by controlling the flow of inert gas into the process. Originally developed for one of the country's largest chemical manufacturers, the Oxytron 2000 has been proven reliable in thousands of installations and can provide control for two independent vessels or processes.

Description

The Oxytron 2000 is a microprocessor based instrument capable of accepting multiple sensor inputs from Neutronics sensors and utilizing them to control user configurable alarms and signal outputs. Two auxiliary 4-20mA inputs enable the input of 4-20mA signals from sensors other than the oxygen sensors. Nine alarm relay contacts are provided for indication of calibration, setpoint activation, system maintenance requirements, fault conditions, and sensor comparison alarms. Two separate isolated 4-20mA current loops are provided to communicate the measurements from one or two oxygen sensors.

The analyzer module contains all of the microprocessor circuits and all visual and manual user interfaces. A backlit 4-line, 16-character LCD alphanumeric display is provided to inform the user of system status, measured parameters, system prompts, and system configuration settings. Three discrete LED status indicators of alarm, warning, and normal provide "at-a-glance" status updates. User interfacing is achieved through the use of soft key pushbutton switches labeled, A, B, and C. Password protection is provided in three levels, ranging from access to calibration procedures and configuration routines to calibration and testing.

The power supply module regulates the user input mains power to the required 5 and 24 volt supplies to the analyzer module. Additionally, the module provides the output 4-20mA current loop power isolation.



Features

- Dual channel operation – control two processes with one instrument
- Two field instrument inputs with alarms and relays – temperature, pressure, pH, RH, and more
- Real-time sensor trending and maintenance prediction
- Programmable automated maintenance features for sensor calibration and flow switch verification
- Programmable real-time diagnostic alarms with relays
- Programmable analog and digital process control outputs
- Designed for use with all Neutronics sample conditioning systems
- Automatically controls oxygen to safe levels – minimizes inert gas usage
- Low maintenance – high quality components with no replacement parts minimizes maintenance costs and unplanned downtime

Applications

Centrifuges

Conveyors and material handling systems

Dryers

Mixers

Process vessels

Reactors

Solvent recovery systems

Solvent wash-down tanks

Storage tanks

Waste gas vent headers

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Automatic calibration

Designed to interface with fuel cell type oxygen sensors, the Oxytron 2000 has several features that address the issue of sensor service life. The auto-calibration function checks the sensor on a daily basis and provides updated information to the sensor predictor function. The sensor predictor is set to trigger a warning when the estimated date of sensor expiration is within 14 days. The "sensor guard" option can be used to increase the frequency of automatic calibration, should the sensor output fall below a selectable level.

Operation

The Oxytron 2000 is designed for stand-alone operation. Conditions of alarm that may impede analyzer operation or signal O₂ concentration alarms are detected and relayed to the user through the alarm relay contact sets, 4-20mA current loop outputs, intrinsically safe solenoid valve outputs, display screen, and LED status indicators.

Calibration modes function automatically if a calibration gas solenoid valve is installed in the sample gas inlet piping to the sensor and wired to the analyzer. Typical calibration periods require approximately two minutes for completion. Utilizing the automatic calibration function gives the user the greatest level of protection against unexpected sensor expiration, ensures the highest degree of sensor accuracy, and provides advance warning of sensor expiration.

Enclosure options

The Oxytron 2000 is available in multiple configurations – standard 19" rack mount, NEMA 4X stainless steel, NEMA 4/7 explosion proof, and custom multi-module enclosures (Fig. 1).



Fig. 1, explosion proof, NEMA 4X, and rack-mount enclosures

Technical specifications

Measurement range	0 to 25% oxygen by volume
Resolution	0.01% oxygen from 0-10%, 0.1% oxygen from 10-25%
Accuracy with fuel cell linearization	0.5% absolute
Display	4-line, 16-character dot matrix, LCD backlit, 4.75 x 3.00mm character size
Current loop output (mA)	Dual, isolated 4-20mA with configurable range, max. load 550Ω, non-linearity < 0.04mA
Status indicators	Discrete LED (red, yellow, green) user configurable
Relay alarm contacts (rating)	5A @ 277VAC, 5A @ 30VDC, single pole, double throw (Form C)
Relay alarm contacts (action)	Fail safe (de-energized in alarm condition)
Relay alarm contacts (supplied)	Nine (9) user configured
Remote lamp contacts (rating)	0.5A @ 125VAC, 2A @ 30VDC
Remote lamp contacts (supplied)	Alarm, warning, normal
Digital inputs	On state: 5-24VDC or open contact; off state: 0VDC or closed contact
General sensor inputs	4-20mA DC (40mA max.), normal impedance 238Ω
Operating temperature range	0-50°C (32-122°F)
Power requirements	220VAC or 115VAC, 50-60 Hz
User interface	Soft-key multi-function pushbuttons
Dimensions (NEMA 4X enclosure)	16" (406mm) height x 20" (508mm) width x 9.75" (248mm) depth
Weight (NEMA 4X enclosure)	50 lbs. (22.7 kg)
Warranty	12 months from date of shipment



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