

# CEM/O<sub>2</sub> Oxygen Analyzer

**Thermox**<sup>®</sup>
*The right analyzer for your application*

## SERIES 2000 CONTROL UNIT

### Display:

Four line x 20 character vacuum fluorescent. Displays combinations of oxygen time and date, cell temperature, user programmable text, thermocouple mV or cell mV. Password protection, programmable pressure compensation and context-sensitive help are also provided.

### Recorder Output:

Two isolated linear current outputs. Select O<sub>2</sub>, cell temperature, thermocouple mV or cell mV. Each output can be 4-20 mA, 0-20 mA, 20-4 mA or 20-0 mA, and is fully scalable. Hold or track during calibration and select degree of damping. Maximum load 1200 ohms.

### Alarms:

Two independent oxygen alarms, each high or low selectable. One alarm can be assigned as oxygen, calibrate or verify. Set relays to energize or de-energize on alarm. Contact rating max. 30VA, 30V max. noninductive load.

### Diagnostics:

Watchdog timer and service alarms. System test for A/D, RAM, EEPROM and keypad. Display line 4 reserved for full text error and diagnostic messages. Twenty entry exception log for automatically detected system events.

### Communications:

RS-485, 2-way addressable

### Environment:

Ambient Temp: 14°F to 122°F (-10°C to 50°C)  
Relative Humidity: 10% to 80%, non-condensing

### System Compliance:

EMC Directive 89/336/EEC

- Immunity Standard, EN 50082-2, Heavy Industrial
- Emissions Standard, EN 55011, Equipment Class: Industrial, Scientific, and Medical

Low Voltage Directive 73/23/EEC

- Safety requirement for electrical equipment for measurement, control and laboratory use, EN 61010-1 (IEC 1010-1)

### Enclosure:

19" general purpose rack mount standard. Optional general purpose panel or wall mount, weatherproof NEMA 4 (IP56) and NEMA 4X (IP56) enclosures available. All are UL Listed for NEC Class I, Division 2 areas.

### Calibration:

Store last calibration and verification data. Selectable calibration gas run time and process recovery time. Timed automatic calibration with optional Remote Calibration Unit. Oxygen cell lifetime extender. Single gas verify that analyzer is within calibration limits.

### Power Requirements:

Nominal 95-230 VAC, ± 10%, 47-63 Hz.

### Power Dissipation:

75 VA max.



## SENSOR

### Operating Range:

0.1% to 100% O<sub>2</sub>

### Accuracy:

± 0.75% of reading or 0.05% O<sub>2</sub>, whichever is greater

### Response Time:

Less than 4 seconds at 2 scfh from 2% O<sub>2</sub> to 20% O<sub>2</sub>

### Repeatability:

± 1% of reading or 0.1% O<sub>2</sub> absolute, whichever is greater

### Drift:

< 0.1% of cell output per month  
(< 0.005% O<sub>2</sub> per month with 2% O<sub>2</sub> applied)

### Maximum Inlet Temperature:

400°F (204°C)

### Sample Flow:

2 scfh to 20 scfh (0.94 L/min. to 9.4 L/min.)

### Environment:

Ambient Temp: 0°F to 122°F (-18°C to 50°C)  
Relative Humidity: 10% to 90%, non-condensing

### Power Requirements:

115 VAC, ± 10%, 47-63 Hz.,  
230 VAC, ± 10%, 47-63 Hz.

### Power Dissipation:

1670 VA max.

### Calibration Gas Requirements:

Use calibration gases @ 2 scfh to 20 scfh (0.94 L/min. to 9.4 L/min.)

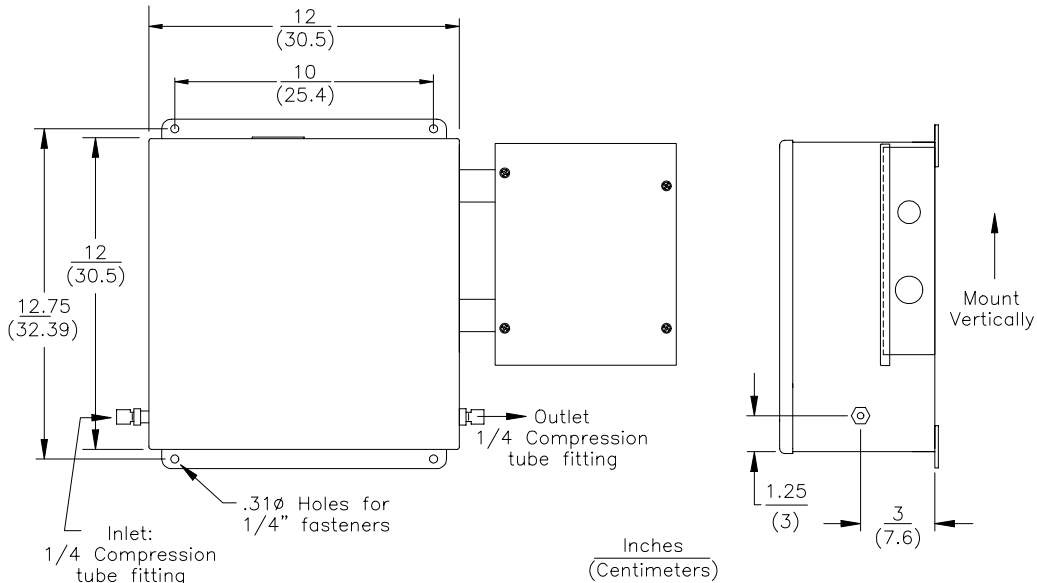
Zero Gas: From 0.1% to 10% O<sub>2</sub>, balance N<sub>2</sub>

Span Gas: Minimum one decade above zero gas (10 times greater)

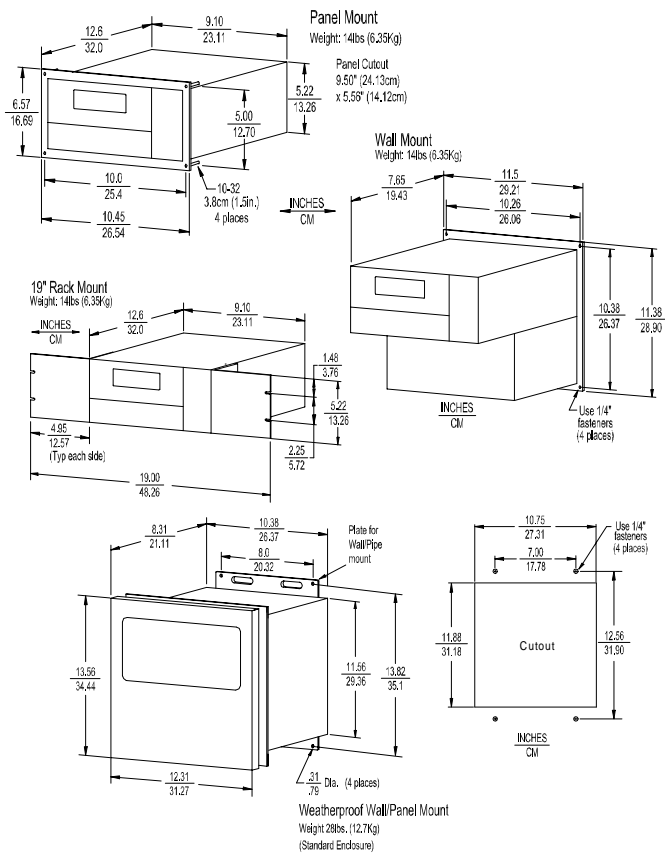
**AMETEK**  
PROCESS & ANALYTICAL INSTRUMENTS DIVISION  
150 Freepoint Road, Pittsburgh, PA 15238  
Tel: (412) 828-9040 Fax: (412) 826-0399  
www.thermox.com



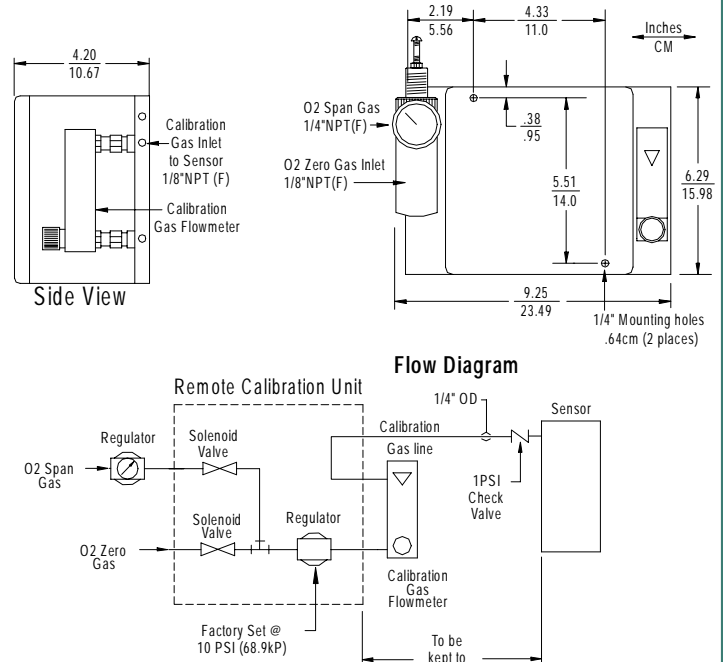
## SENSOR



## CONTROL UNIT



## REMOTE CALIBRATION UNIT



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### Notes :

1. All static performance characteristics are with operating variables constant.
2. System accuracy referenced to 0.1 to 10% calibrated range.