

WDG-IV

Flue Gas Oxygen Analyzer

Thermox®
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 O₂ 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. non-inductive 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 event log.

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:

Choice of general purpose wall mount, general purpose 19" rack mount, general purpose panel mount, weatherproof NEMA 4 wall/panel mount, and stainless steel weatherproof NEMA 4X wall/panel mount. All are UL Listed for NEC Class I, Division 2 areas. Purged and explosion-proof versions also available.

Calibration:

Oxygen cell lifetime extender. Calibrate or verify calibration. Store last calibration and verification data. Selectable calibration gas run time and process recovery time. Timed automatic calibration with optional Remote Calibration Unit.

Power Requirements:

Nominal 95-230 VAC, ± 10%, 47-63 Hz.

Power Dissipation:

75 VA max.



SENSOR

Principle of Operation:

Close-coupled extractive oxygen analyzer using a zirconium oxide electrochemical cell for oxygen measurement. Completely field serviceable.

Display Range:

Oxygen: 0.1-100%

Output Range:

Oxygen: From 0-1% to 0-100%

Accuracy:

± 0.75% of measured value or ± 0.05% oxygen, whichever is greater

Response:

Oxygen: 63% of a process step change < 3 secs.

Drift:

Oxygen: < 0.1% of cell output per month (< 0.005% O₂ per month with 2% O₂ applied)

Aspirator Air Requirements:

10 to 20 scfh (4.72 to 9.4 L/min) at 15 to 100 psig (1.05 to 7.04 kg/cm²)

Flue Gas Temperatures/Probes:

- to 1300°F (704°C) with 316 SS
- to 1875°F (1024°C) with RA330
- to 2600°F (1426°C) with mullite
- to 3200°F (1760°C) with alumina

Probe Lengths:

36" (91cm) to 108" (274 cm) 316SS or RA330
24" (60cm) or 42" (106 cm), mullite or alumina

Max. Sample Dewpoint:

450°F (232°C) standard. High dewpoint sensors are available for sample dewpoints up to 700°F (371°C).

Sample Pressure:

- ± 2 psig: no adjustments required
- ± 2 to ± 9 psig: software selectable
- ± 10 psig and above: consult factory

Environment:

Ambient Temp:
-5°F to 160°F (-20°C to 71°C);
-5°F to 140°F (-20°C to 60°C) with Div. 2 Option
Relative Humidity:
10% to 90%, non-condensing

Enclosure:

General purpose, weather resistant, stainless steel. Explosion-proof and purged versions are optional.

Power Requirements:

115 VAC, ± 10%, 47-63 Hz., 600 VA max.
(650 VA max floor mount option);
230 VAC, ± 10%, 47-63 Hz., 1850 VA max.
(1900 VA max. floor mount option)

Calibration Gas Requirements:

Use calibration gases @ 10 psig, 1.5 scfh (0.70 kg/cm², 0.7 L/min.)

O₂ Span Gas:

Air or from 1.0 to 100% O₂, balance N₂

O₂ Zero Gas:

2% or from 0.1 to 10% O₂, balance N₂

Excess Fuel Software Option:

Extends operating range of analyzer from excess oxygen only to include substoichiometric conditions (excess fuel). Allows two-point calibration in excess fuel range. Measure, display, and provide alarms and analog outputs as follows:

Display Options:

Excess fuel, combustibles, oxides/ fuel, fuel/oxides, combined excess oxygen/excess fuel (combustibles)

Display Range: 0-50% excess fuel

Output Range: 0-1% to 0-50% excess fuel

Alarms: Standard alarms can be used for high or low excess fuel levels.

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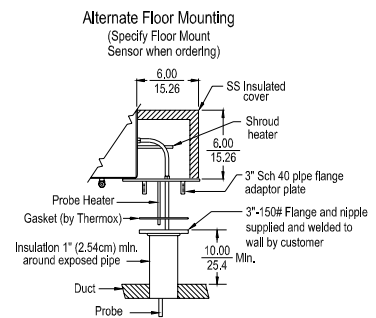
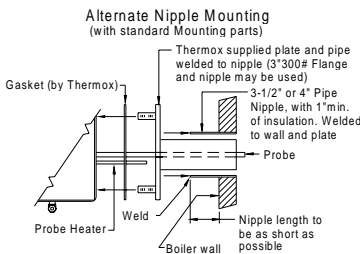
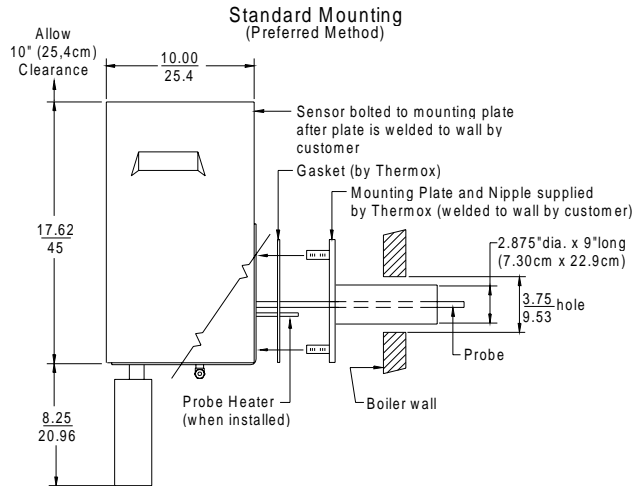
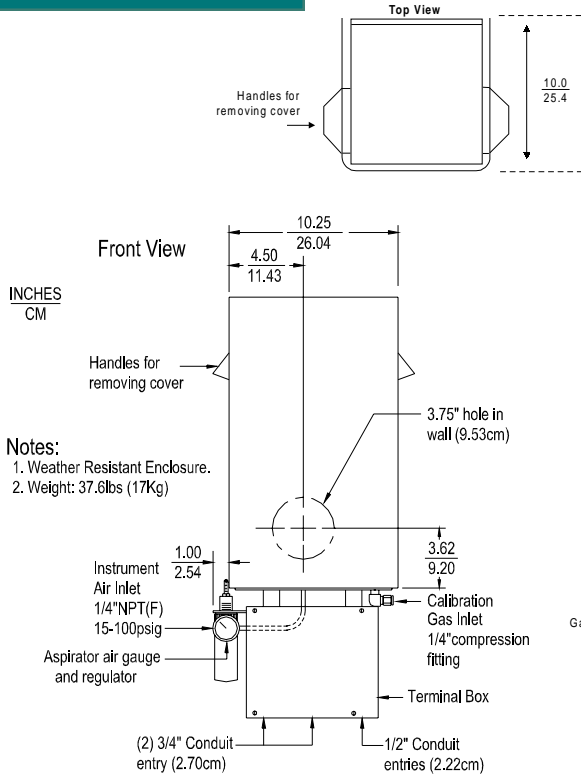
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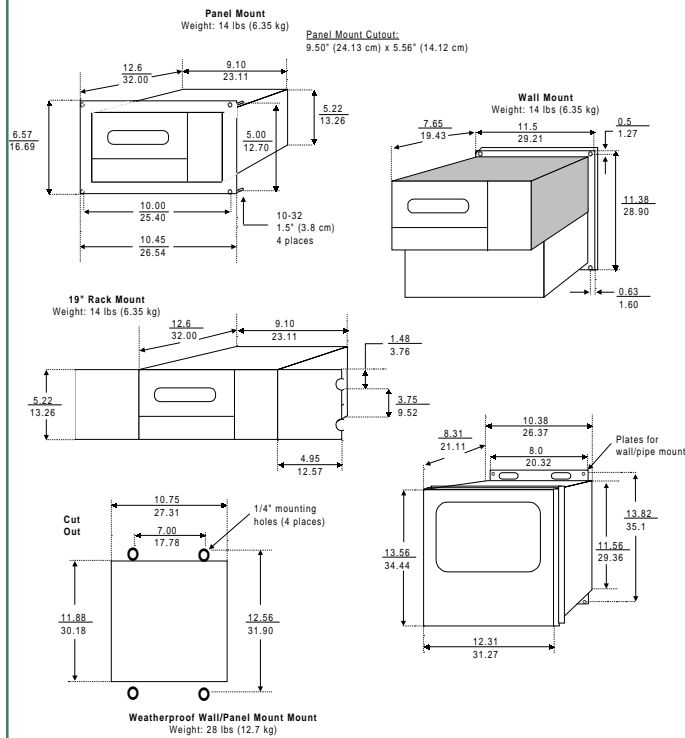
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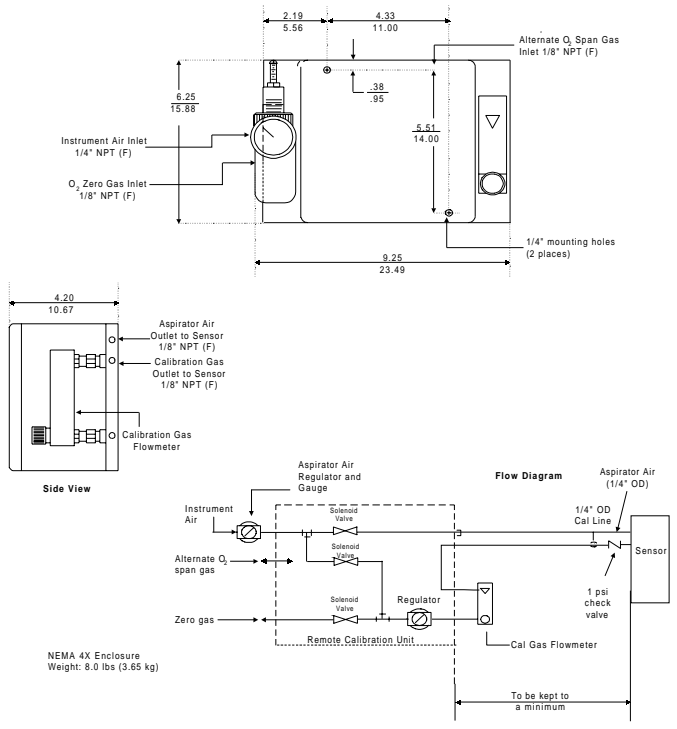
CONTROL UNIT

INCHES / CM



REMOTE CALIBRATION UNIT

INCHES / CM



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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.