

# WDG-IVCM

## 3-in-1 Flue Gas Analyzer

# Thermox®

The right analyzer for your application

### SERIES 2000 CONTROL UNIT

#### Display:

Four line x 20 character vacuum fluorescent. Displays combinations of oxygen, ppm combustibles, methane, 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 for oxygen and one each for combustibles and methane. Select O<sub>2</sub>, combustibles, methane, 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. Two high combustibles and two high methane alarms. Set relays to energize or deenergize 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 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 (IP 56) wall/panel mount, and stainless steel weatherproof NEMA 4X (IP 56) 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, combustibles and methane analyzer using zirconium oxide for oxygen measurement and catalytic detectors for both combustibles and methane. Completely field serviceable.

#### Display Range:

Oxygen: 0.1-100%  
 Combustibles: 0-10,000 ppm  
 Methane: 0-5%

#### Output Range:

Oxygen: From 0-1 to 0-100%  
 Combustibles: From 0-2,000 ppm to 0-10,000 ppm  
 Methane: 0-5%

#### Accuracy:

Oxygen: ±0.75% of measured value or ±0.05% oxygen, whichever is greater  
 Combustibles: ±2% of full scale output range  
 Methane: ±5% of full scale output range

#### Response:

Oxygen: 63% of a process step change < 3 secs.  
 Combustibles: 63% of a process step change < 7 secs.  
 Methane: 63% of a process step change < 12 secs. without flame arresters, < 30 secs. with flame arresters

#### Drift:

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

#### 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" (274cm)

#### Max. Sample Dewpoint:

450°F (232°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 the 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. with floor mount option);  
 230 VAC, ±10%, 47-63 Hz., 1850 VA max.  
 (1900 VA max. with floor mount option)

#### Calibration Gas Requirements:

Use calibration gases @ 10 psig, 1.5 scfh (0.70 kg/cm<sup>2</sup>, 0.7 L/min.)

O<sub>2</sub> Span Gas: Air or from 1.0% to 100% O<sub>2</sub>, balance N<sub>2</sub>

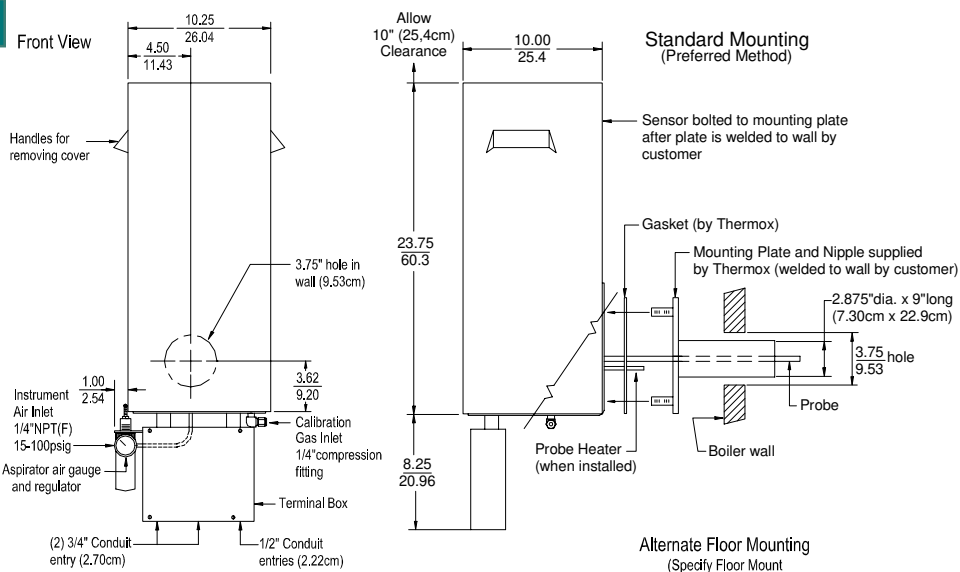
O<sub>2</sub>, Comb. & CH<sub>4</sub> Zero Gases: From 0.1 to 10% O<sub>2</sub>, balance N<sub>2</sub>

Comb. & CH<sub>4</sub> Span Gas: 60 to 80% of the selected comb. recorder output range in certified mixtures of CO or CO + H<sub>2</sub>, N<sub>2</sub>, 2% CH<sub>4</sub>, 8 to 10% O<sub>2</sub>, balance N<sub>2</sub>.

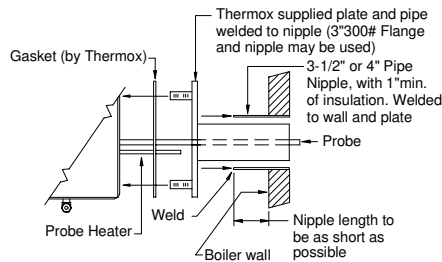
**AMETEK**  
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## SENSOR



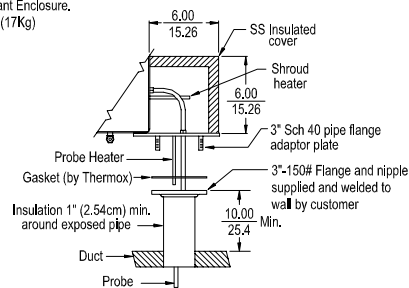
### Alternate Nipple Mounting (with standard Mounting parts)



- Notes:**  
 1. Weather Resistant Enclosure.  
 2. Weight: 37.6lbs (17Kg)

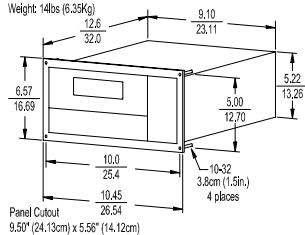
INCHES  
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### Alternate Floor Mounting (Specify Floor Mount Sensor when ordering)

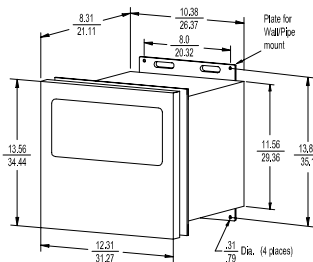
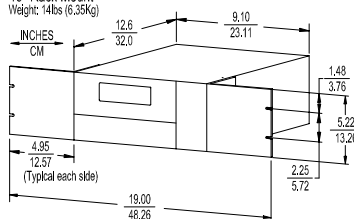


## CONTROL UNIT

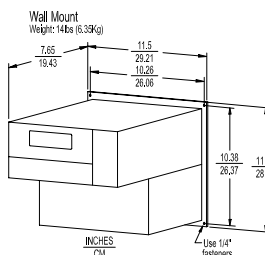
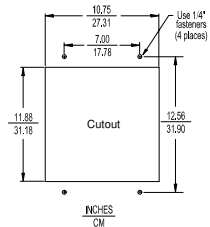
### Panel Mount



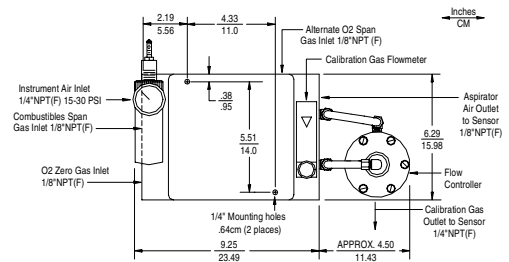
### 19" Rack Mount



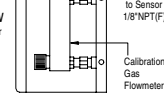
Weatherproof Wall/Panel Mount  
 Weight: 29lbs. (12.7kg)  
 (Standard Enclosure)



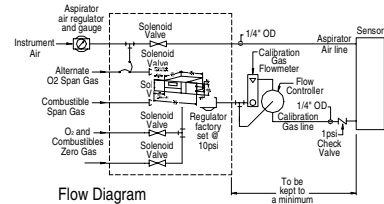
## REMOTE CALIBRATION UNIT



### Side View



WDG-IVCM  
 NEMA 4X Enclosure  
 Weight: 8.0lbs. (3.65kg)



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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.