THERMOX®

PROCESS INSTRUMENTS

BULLETIN P-210

THE RIGHT ANALYZER FOR *YOUR* APPLICATION!

WDG-HPII FLUE GAS OXYGEN ANALYZER

CLOSE-COUPLED CONVECTIVE DESIGN FOR HIGH PARTICULATE APPLICATIONS. SUITABLE FOR FLUE GAS TEMPERATURE UP TO 2800°F (1537°C). COMPLETELY FIELD SERVICEABLE.

SENSOR

Principle of Operation: Zirconium oxide for net oxygen measurement

Output Range: From 0-1% to 0-100%

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

Response: < 3 sec. to calibration gas. 63% of process step change <16 secs. with 24" probe

Drift: < 0.1% of cell output per month (< 0.005% O_2 per month with 2% O_2 applied)

Max. Flue Gas Temp. / Probe Type
1300°F (704°C) / 316 SS
1875°F (1024°C) / RA330
2800°F (1537°C) / Ceramic

Probe Lengths: 24", 36" & 48" (0.60 m, 0.91 m & 1.21 m)

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: Lift-off NEMA 3R, weather resistant, stainless steel. Optional hinged NEMA 4X (IP56), explosion-proof, purged, and floor mount versions available.

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

Calibration Gas Requirements: Use calibration gases @ 10 psig, 1.5 scfh (0.70 kg/cm^2, 0.7 L/min.)

O_2 Span Gas: Air or from 1.0% to 100% O_2, balance N_2

O_2 Zero Gas: 2% or from 0.1% to 10% O_2, balance N_2

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.

Analog Output: Two isolated linear current outputs. Select O_2, cell temperature, thermocouple mV or cell mV. Each output can be 4-20 mA, 0-20 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

Enclosure: Standard weatherproof NEMA 4 (IP 56) wall/panel mount. Optional GP (General Purpose) wall mount, GP 19" rack mount, GP panel mount, or 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 115-230 VAC ±10%, 47-63 Hz, 75 VA max.

System Compliance
EMC Directive 89/336/EEC
Low Voltage Directive 73/23/EEC

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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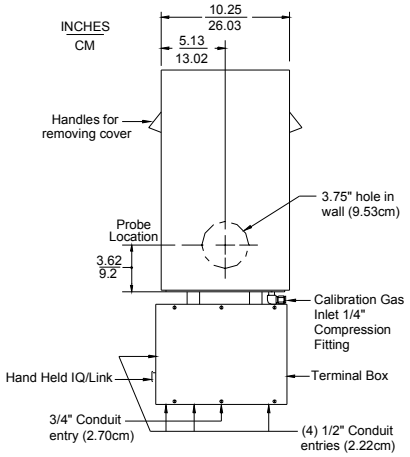
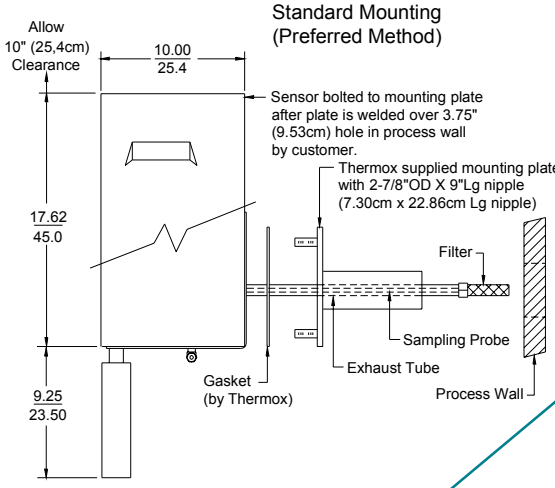
DIMENSIONS

SENSOR

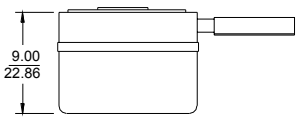
APPROX. WEIGHT: 37.6 LB (17 KG)





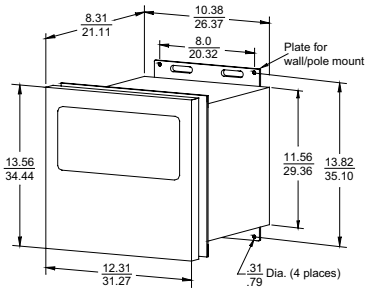
OPTIONAL HINGED ENCLOSURE

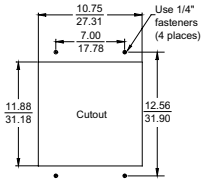
APPROX. WEIGHT: 53.0 LB (24.0 KG)



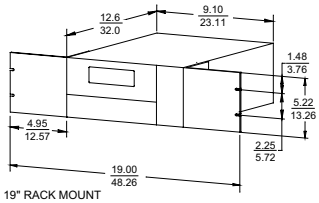
OPTIONAL FLOOR MOUNT VERSION AVAILABLE (VERTICAL PROBE)

CONTROL UNIT

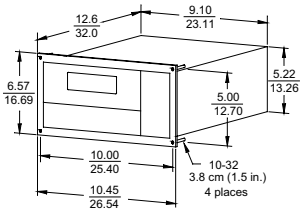




STANDARD ENCLOSURE
NEMA 4 WALL/PANEL MOUNT

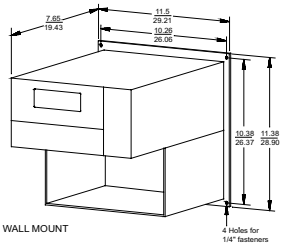


19" RACK MOUNT



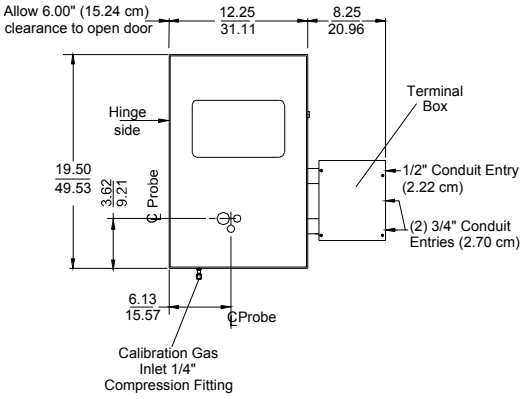
PANEL MOUNT

Panel Cutout
9.50" x 5.56" (24.13 cm x 14.12 cm)



WALL MOUNT

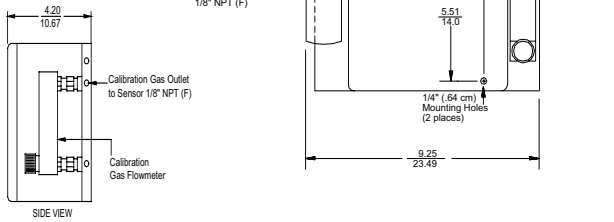
APPROX. WEIGHTS
NEMA 4 WALL/PANEL MOUNT: 28 LB (12.7 KG)
19" RACK MOUNT: 14 LB (6.35 KG)
PANEL MOUNT: 14 LB (6.35 KG)
WALL MOUNT: 14 LB (6.35 KG)



REMOTE CALIBRATION UNIT

RCU ENCLOSURE NEMA 4X

APPROX. WEIGHT: 8 LB (3.6 KG)



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

One of a family of innovative process analyzer solutions from AMETEK Process Instruments. Specifications subject to change without notice.

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