# CENELEC WDG-IV/IVC

## Flue Gas Oxygen & Combustibles Analyzer

**Thermox®**

*The right analyzer for your application*

### SERIES 2000 CONTROL UNIT

***Display:***
Four line x 20 character vacuum fluorescent. Displays combinations of oxygen, % or ppm combustibles, 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 for combustibles. Select $O_2$, combustibles, 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 alarms. 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

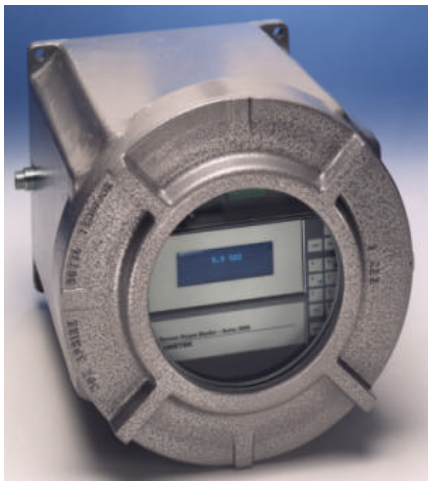
***System Compliance:***
EMC Directive 89/336/EEC
- Immunity Standard, EN 50082-2, Heavy Industrial
- Emissions Standard, EN 55011, Equipment Class: Industrial, Scientific, and Medical

Low Voltage Directive 73/23/EEC
- Safety requirement for electrical equipment for measurement, control and laboratory use, EN 61010-1 (IEC 1010-1)

***Enclosure:***
CENELEC Approved for EEx d II C T6 (IP65). Also choice of general purpose wall mount, general purpose 19" rack mount, general purpose panel mount, weatherproof IP 56 (NEMA 4) wall/panel mount, and stainless steel IP 56 (NEMA 4X) weatherproof wall/panel mount.

***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 and combustibles analyzer using zirconium oxide for oxygen measurement and a catalytic detector for combustibles. Completely field serviceable.

***Display Range:***
Oxygen: 0.1-100%
Combustibles: 0-10,000 ppm or 0-5%

***Output Range:***
Oxygen: From 0-1% to 0-100%
Combustibles: From 0-2,000 ppm to 0-10,000 ppm from 0-1% to 0-5%

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

***Response:***
Oxygen: 63% of a process step change <30 secs.
Combustibles: 63% of a process step change <30 secs.

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

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), 316SS or RA330
24" (60cm) or 42" (106cm), mullite or alumina

***Max. Sample Dewpoint:***
400°F (204°C)

***Sample Pressure:***
±2 psig: no adjustment 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)
Relative Humidity: 10% to 90%, non- condensing

***Enclosure:***
Sensor: CENELEC EEx d IIC T5 (IP 65)
T5: -5°F to 104°F (-20°C to 40°C)
T4: -5°F to 160°F (-20°C to 71°C)
RCU: CENELEC EEx d IIC T6 (IP 65)

***Power Requirements:***
115 VAC, ±10%, 47-63 Hz., 600 VA max.;
230 VAC, ±10%, 47-63 Hz., 1850 VA max.

***Calibration Gas Requirements:***
Use calibration gases @ 10 psig, 250 cc/min. (0.53 scfh)

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

Zero and Comb. Zero Gas:
2% or from 0.1 to 10% $O_2$, balance $N_2$

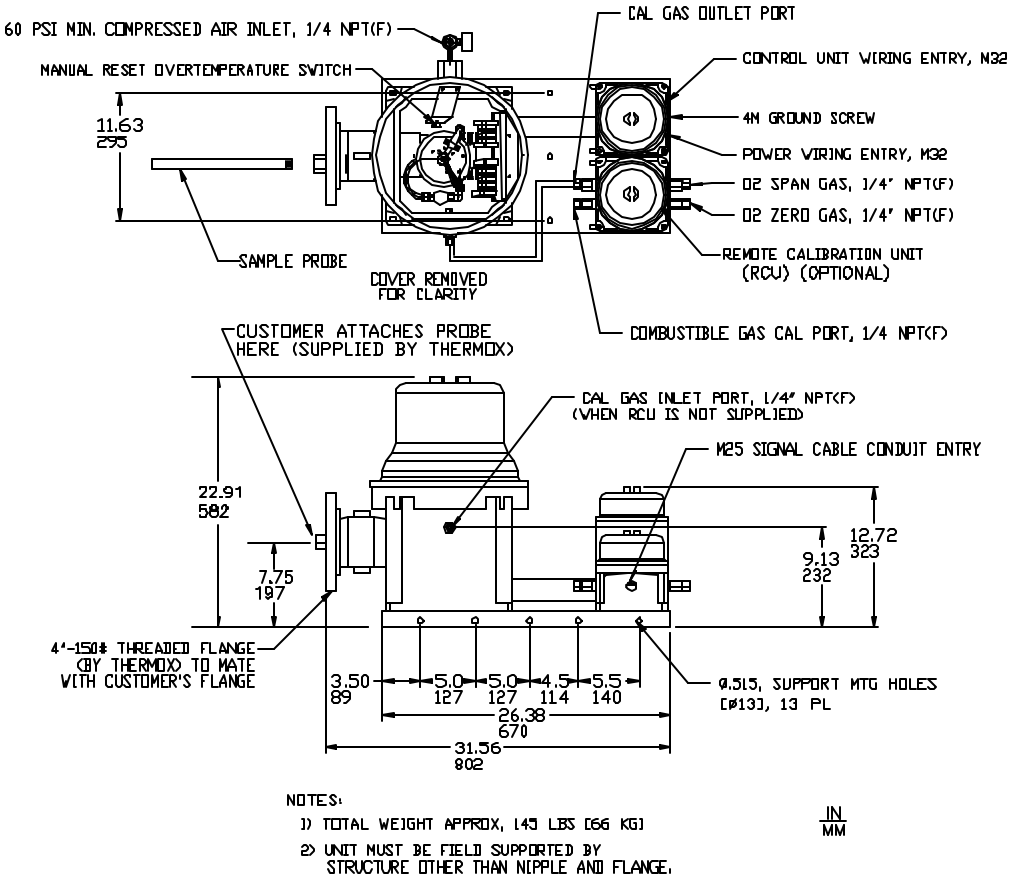
Comb. Span Gas:
60 to 80% (ppm ranges) or 40 to 60% (% ranges) of the selected comb. recorder output range in certified mixtures of CO or CO + $H_2$, excess $O_2$, balance $N_2$

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

# Dimensions



## SENSOR




NOTES:

1) TOTAL WEIGHT APPROX, 145 LBS [66 KG]

2) UNIT MUST BE FIELD SUPPORTED BY STRUCTURE OTHER THAN NIPPLE AND FLANGE.

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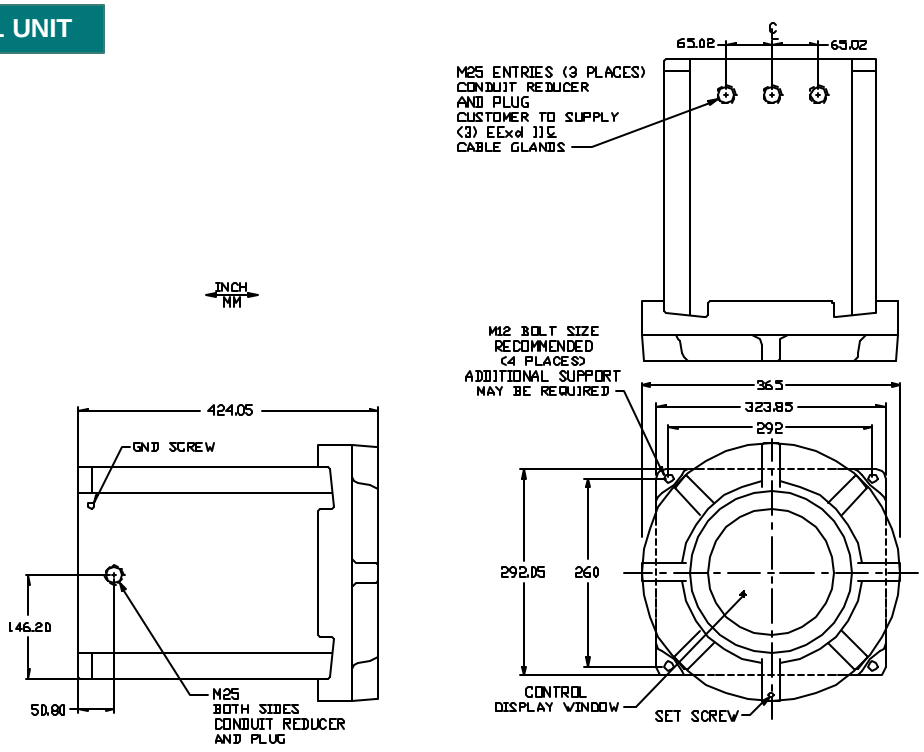
## CONTROL UNIT






**NOTES:**

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