

PRODUCT DATA SHEET

CMFA-P2000 Portable Premix Gas/Flue Gas Analyzer

**Accurate, versatile pre-combustion
analysis of flue gas**

The CMFA-P2000 – Combustion mix flue gas analyzer was designed specifically to meet the dual furnace combustion requirements of glass container manufacturing plants. Using a highly reactive bare platinum zirconium oxide (ZrO₂) cell, the analyzer is capable of measuring excess oxygen (O₂) in post combustion flue gas or excess O₂ to excess fuel in premixed combustion samples feeding forehearth zones.

The transportable two piece analysis and control arrangement allows separation so that the readout control can be viewed while making remote adjustments of premix and combustion air valves. An optional air compressor for driving the integral air operated aspirator is available for sampling low flow premix gases, and pulling flue gas samples under draft conditions.

The Series 2000 microprocessor control unit provides a four-line digital display, analog outputs, alarms, system and sensor diagnostics and software supported calibration.



KEY BENEFITS

- Two analyzers in one – acts as a flue gas O₂ analyzer or a premix gas analyzer
- Built-in compressor for pulling flue gas samples into the analyzer
- Works in either excess fuel or excess air environments
- In premix mode, measures air/fuel ratio in open-flame applications where flue gas measurements are impractical
- Provides much better accuracy than directly measuring O₂ or combustibles in the premix gas



APPLICATIONS

- Spot sampling glass melting tanks
- Mix station tuning on forehearths
- Furnace atmosphere control
- Flame treating



KEY MARKETS

- Glass manufacturers
- Glass fiber manufacturer

PERFORMANCE SPECIFICATIONS

Enclosure	Both the sensor and control unit are housed in a luggage style, aluminum carrying case
Operating range	100% to 0.1% excess O ₂ and 0.1% to 50% excess fuel
Display	Four-line x 20-character vacuum fluorescent display. Displays combinations of excess O ₂ , excess fuel, combined excess O ₂ to excess fuel, fuels/oxides, oxides to fuels, combustibles, time and date, cell temperature, user programmable text, thermocouple mV, or cell mV Password protection and context sensitive help are also provided
Diagnostics	System test for A/D, RAM, EEPROM and keypad Display line four reserved for full text error and diagnostic messages. Twenty-entry event log
Analog output	Isolated, linear current output, fully scalable Select excess O ₂ , excess fuel, combined excess oxygen to excess fuel range, combustibles, fuels/oxides, oxides/fuels, cell temperature, thermocouple mV and cell mV. Hold or track during calibration and select degree of damping. Maximum load 1200 ohms
Calibration	Calibrate or verify calibration. Store last calibration and verification data
Built-in compressor	Draws gas from up to 6 inches of water vacuum
Power requirement	115 VAC \pm 10%, 50-60 Hz, 747 VA max.; 230 VAC \pm 10%, 50-60 Hz, 2222 VA max
Environment	Ambient temperature: Control section: 14°F to 116°F (-10°C to 47°C), Sensor section: -5°F to 100°F (-20°C to 37.8°C) (See note) Relative humidity: 10% to 90%, noncondensing
Sample temperature	Flue gas inlet: 0°F to 2000°F (-18°C to 1100°C) Premix inlet: 32°F to 122°F (0°C to 50°C)
Accuracy	\pm 2% of measured value or \pm 0.1% O ₂ , whichever is greater. \pm 5% of measured value or \pm 0.25% excess fuel, whichever is greater (specifications based on 0-15% range, natural gas)
Response time	Percent O ₂ : 63% <18 seconds; 90% <22 seconds Percent excess fuel: 63% <17 seconds; 90% <63 seconds
Drift	Less than 0.1% of the cell output per month
Repeatability	\pm 0.2% of measured value
Sample/calibration gas flow rate	2 SCFH (1 liter/min.)
Max. sample pressure	10 PSIG (68.95 kPa)
Dimensions	(H x W x D): 10.75" x 18" x 16" (27.3 cm x 45.7 cm x 40.7 cm)
Weight	44 lb (19.9 kg)
System compliance	EMC Directive: 2004/108/EC Low Voltage Directive: UL 3101-1

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