

- **Microprocessor based**
- **Measures**
O₂ (oxygen)
CO (carbon monoxide)
NO (nitric oxide)
- **Automatic calculation of CO and NO corrected to 3% oxygen**
- **Calculated excess air**
- **Completely portable**
- **50 sample memory**
- **Optional printer**
- **LCD display with backlight**
- **RS232C communications port**
- **Long life electro-chemical cells with CO over range protection**
- **Built-in time and date**
- **Automatically maintained sample flow rate**
- **Built-in rechargeable battery**



- **Battery charger**
- **Automatic power off**
- **Optional calibration kit (8104-CALKIT)**

THE CLEAN AIR ACT AND YOU

The Clean Air Act Amendments of 1990 (CAAA) requires that sources of products of combustion in many parts of the United States be in compliance with emission limitations derived from provision of the legislation. As each State passes its State Implementation Plan, the restraints in the CAAA will begin to be enforced. This is already happening in many places. In Canada proposed legislation now in work will call for similar requirements. In order for you to deal with this reality, the management of combustion driven operations must know what emissions their systems are producing. The EnviroMate™ 8104A Flue Gas Analyzer can meet this need, delivering immediate and accurate readings of CO and NO.

Even if your locale has no immediate concern regarding emissions, the 8104A can serve you extremely well. With time and use, any combustion system goes out of adjustment. The EnviroMate™ catches this by measuring O₂ and calculating excess air, as well as reporting CO and NO, enabling you to correct such conditions that could otherwise result in 10-25% higher fuel bill through excessive consumption.

METHOD OF ANALYSIS

The 8104A is a microprocessor-based portable analyzer that measures O₂, CO, and NO and simultaneously calculates (1) NO and CO corrected to 3% oxygen and (2) excess air for single and dual fuel (oil/gas) applications. These parameters are displayed on a backlit supertwist LCD display. Up to 50 sets of readings can be stored for later retrieval. To take a sample reading, simply insert the probe into the stack and press the PUMP ON button. Once stabilized, the readings update in real time. To store a set of readings, press the SAMPLE button.

CALIBRATION OF INSTRUMENTATION

The EnviroMate™ utilizes electro-chemical cells that have long life, high accuracy, and repeatability. In order to ensure accurate readings, periodic calibration is required. North American offers an optional calibration kit designated 8104-CALKIT.

POWER SUPPLY

An internal rechargeable battery powers the 8104A for up to six hours of continuous operation. Included in the case is a battery charger which if plugged into AC power, operates the unit continuously or recharges a low battery. An LED shows when the battery is being charged.

SAMPLE PUMP SYSTEM

A microprocessor controlled pump, capable of pulling the sample gas through sample lines from the stack to the analyzer, maintains a constant flow rate of 2 scfh. Varying flue or stack pressures are of no concern.

CO BYPASS SYSTEM

To reduce the possibility of damage to the CO cell during flue gas sampling, a bypass system has been incorporated. The cells are purged automatically with fresh air during periods of high CO concentrations.

FILTER SYSTEM

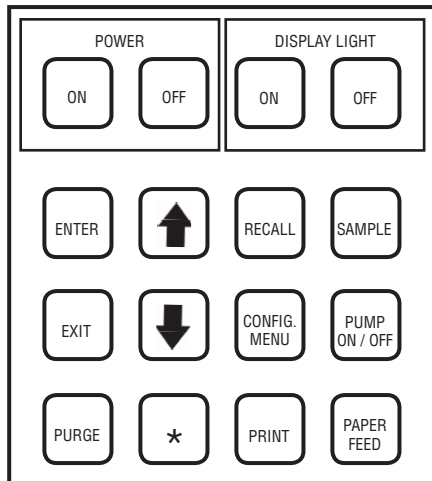
The 8104A has a dual filter system. The first filter is a desiccant that removes moisture from the sample gas. The second is a particulate filter to trap solid contaminants before the electro-chemical cells. Both filters are easily replaced without special tools or disassembly of unit.

OPTIONAL PRINTER

A factory installed 24-character dot matrix printer is available that can print real time or stored sample readings on demand. A supply of ink ribbon and standard paper is included.

The 16 keys on the 8104A have the following functions:

KEY FUNCTIONS



PUMP ON/OFF: Toggle key to start and stop pump.

CAL: Selects display for calibration sequence.

ENTER: Accepts data during calibration.

EXIT: For ending calibration.

UP-Arrow Key: Scrolls display readings when CAL or RECALL selected.

DOWN-Arrow Key: Scrolls display readings when CAL or RECALL selected.

SAMPLE: Saves a selected sample reading with time and date of acquisition.

RECALL: Selects stored sample.

POWER ON: Turns power on.

POWER OFF: Turns power off.

DISPLAY LIGHT ON: Turns display backlight on.

DISPLAY LIGHT OFF: Turns display backlight off.

PURGE: 90-second manual purge.

PRINT: Prints current screen or stored samples.

PAPER FEED: Manually feeds paper in printer.

*****: Toggles display for calculated excess air, CO and NO corrected to 3% oxygen.

ADDITIONAL FEATURES

- n 50 Sample memory
- n Time and date stamp
- n CO bypass over range protection
- n Automatic O₂ span and NO/CO zero on power up

SPECIFICATIONS

Analog Output: Range: 0.5 V; Resolution: 10 bits. User selectable (can represent CO, NO, or O₂).

Serial Port: RS232C data port; DB9 connector; use standard communications software.

Power Requirements: 120/240 V ac or internal rechargeable battery. 6-hour operational life.

Dimensions: 16 1/2" W × 7 1/2" H × 11 1/2" D

MEASURED PARAMETERS

Oxygen (O₂)
Range: 0 to 25%
Accuracy: ±0.5% O₂
Resolution: 0.1% full scale

Carbon Monoxide (CO)
Range: 0 to 1000 ppm
Accuracy: ±3% of reading
±3 counts typical
Resolution: 1 ppm

Carbon Monoxide (CO)
Range: 1000 to 4000 ppm
Accuracy: ±3% of reading
±3 counts typical
Resolution: 5 ppm

Nitric Oxide (NO)
Range: 0 to 1000 ppm
Accuracy: ±3% of reading
±3 counts typical
Resolution: 1 ppm

Nitric Oxide (NO)
Range: 1000 to 4000 ppm
Accuracy: ±3% of reading
±3 counts typical
Resolution: 5 ppm

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.

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