“Unlike any other industrial grade combustion efficiency and environmental analyzer on the market today, the ECA 450 conducts accurate combustion and emissions tests that will help you meet environmental regulations and ensure your equipment is burning efficiently.”

**MODULAR SENSORS**

1) Carbon Monoxide (High)
2) NO Sensor
3) NO₂ Sensor
4) SO₂ Sensor
5) Combustible Sensor

- Built-in printer
- Downloads test results to PC
- Stores over 1,000 test records
- Large, easy to read data display that is visible from wide angles
- Simple, menu-driven setups that deliver the data you want in the format you want
- Modular Sensor Compartment lets you add sensors as your needs grow

EPA/ETV Test Verifying Performance
TECHNICAL DATA

Measurements & Ranges

- **Oxygen**: 0.1 to 20.9%
- **Carbon Monoxide** (hydrogen compensated): 0 to 4000 ppm
- **Carbon Monoxide (high)**: 4001 to 80000 ppm
- **Nitric Oxide***: 0 to 3500 ppm
- **Nitrogen Dioxide***: 0 to 500 ppm
- **Sulfur Dioxide***: 0 to 4000 ppm
- **Combustibles***: 0 to 5.00% (application dependent)
- **Stack Temperature**: -4 to 2400 degrees F (-20 to 1215°C)
- **Primary/Ambient Temperature**: -4 to 999 degrees F (-20 to 999°C)
- **Pressure/Draft**: -27.7 to 27.7 inches of H20

Calculations & Ranges

- **Combustion Efficiency**: 0.1 to 100.0%
- **Excess Air**: 1.0 to 250%
- **Carbon Dioxide (dry basis)**: 0 to fuel dependent maximum
- **NOX (NO + NO2)**: 0 to 4000 ppm
- **NOX referenced to % O2**: 0 to 17000 ppm
- **CO referenced to % O2**: 0 to 99999 ppm
- **NO referenced to % O2**: 0 to 14900 ppm
- **NO2 referenced to % O2**: 0 to 2100 ppm
- **SOX referenced to % O2**: 0 to 17000 ppm

Accuracy

- **Oxygen**: ± 0.3% O2 on practical concentration of fuel gas
- **Stack or Flue Gas Temp.**: ± 4°F between 32 and 255°F (± 2°C between 0 and 124°C)
- **± 6°F between 286 and 480°F (± 3°C between 125 and 249°C)
- **± 8°F between 481 and 752°F (± 4°C between 250 and 400°C)

Primary-air/ambient Temp. ± 2°F between 32 and 212°F (± 1°C between 0 and 100°C)
- **Pressure Draft**: ± 2% of reading or ± ± .02 in wc whichever is greater
- **CO**: ± 5% of reading or ± 10 ppm whichever is greater between 0-2000 ppm CO
- **± 10% of reading between 2001 to 40000 ppm CO
- **NO**: ± 5% of reading or ± 5 ppm whichever is greater between 0-2000 ppm NO
- **NO2**: ± 5% of reading or ± 5 ppm whichever is greater between 0-500 ppm NO2
- **SO2**: ± 5% of reading or ± 10 ppm whichever is greater between 0-2000 ppm SO2
- **HC**: ± 5% of full scale

Selectable Fuels: Natural Gas, Oil #2, Oil #4, Oil #5, Oil #6, Propane, Coal, Wood, Kerosene, Bagasse

Power: Universal AC adapter and an internal battery pack. Adapter will accept input voltages from 100 to 240V. Fully charged battery pack provides a minimum of 8 hrs of operation

Pumps & Probe: Two pumps are included. The first pump supplies gas sample to the sensors. The second pump supplies fresh air to purge the low range CO sensor when CO levels exceed 4000 ppm. Probe includes a standard probe and hose assembly equipped with a water trap, particulate filter, probe stop, 15 feet of hose, and 12-inch probe tube.

Size: 13.5” H x 18.5” W x 9” D

Weight: 25 lbs. (11.34 kg)

Warranty: 1 year, extended warranty available

* Optional

Applications

The ECA 450 is ideal for professionals concerned about combustion efficiency, environmental compliance, or both. It enables plant maintenance engineers and managers, industrial boiler/furnace service technicians, energy coordinators, compliance officers, environmental auditors and safety managers to ensure that industrial equipment is burning efficiently while environmental regulations are being met.

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-7221</td>
<td>Base Unit (O2, CO, Ts, Ta, DP)</td>
</tr>
<tr>
<td>24-8400</td>
<td>NOx Kit with NO/NOx sensors and compact sample conditioner</td>
</tr>
<tr>
<td>24-8401</td>
<td>NOx and SOx Kit with NO, NOx and SO2 sensors and compact sample conditioner</td>
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<table>
<thead>
<tr>
<th>PART NO.</th>
<th>REPLACEMENT SENSORS</th>
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<tbody>
<tr>
<td>24-0788</td>
<td>O2 Sensor</td>
</tr>
<tr>
<td>24-0789</td>
<td>CO (low) Sensor</td>
</tr>
<tr>
<td>24-0997</td>
<td>CO (high) Sensor</td>
</tr>
<tr>
<td>24-0881</td>
<td>NO Sensor</td>
</tr>
<tr>
<td>24-1055</td>
<td>Combustible Sensor</td>
</tr>
<tr>
<td>24-1027</td>
<td>NO2 Sensor</td>
</tr>
<tr>
<td>24-0998</td>
<td>SO2 Sensor (requires NO option)</td>
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</table>

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>ACCESSORIES</th>
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<tbody>
<tr>
<td>07-1644</td>
<td>Filters (pkg. of 3)</td>
</tr>
<tr>
<td>24-7059</td>
<td>Calibration Kit (does not include gas)</td>
</tr>
<tr>
<td>104-1800</td>
<td>Thermocouple Wand Extension, 5 feet</td>
</tr>
<tr>
<td>104-4027</td>
<td>Serial Cable DB9M to DB9F</td>
</tr>
<tr>
<td>24-0980</td>
<td>Printer Paper (5 rolls)</td>
</tr>
</tbody>
</table>

The maximum operating temperature for probes included in 24-7221, 24-7224, 24-7223, 24-3024 and 24-3025 is 1472°F (800°C). The maximum operating temperature for high temperature probes 24-3035, 24-3036 and 24-3037 is 2000°F (1093°C).

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