



# EGA4 Combustion Analyzer

*Providing the latest technologically advanced instrumentation  
for combustion service engineers, installers & technicians*

## Features

- Complete sample-conditioning probe assembly
- Four robust electrochemical sensor cells for accurate emission measurements
- Automatic CO over range protection
- Built-in impact printer
- Rechargeable battery
- Easy to use, common-language text and keyboard
- Stores up to 250 samples
- Protective carrying case to store instrument, probe, charger and other accessories



## One Instrument, Many Functions

1. Combustion gas analyzer
2. Draft & differential pressure meter
3. Two-channel thermometer
4. Ambient CO monitor
5. Gas velocity with Pitot tube
6. Gas pipe and valve system leak tester
7. Gas leak location detector
8. Ionization flame tester
9. Temperature and humidity meter

The new handheld EGA4 is the most comprehensive analyzer available for:

- Combustion tuning and maintenance;
- Orifice Delta Pressure flow checks;
- Pressure switch testing;
- Water, air, surface temperature measurements;
- Draft, gauge and differential pressure measurements;
- Search for presence and location of gas leaks (optional);
- Operator safety with ambient CO and O<sub>2</sub> continuous monitoring (optional);
- Ambient temperature and relative humidity conditions (optional).

## **Description of Features**

### **Gas Sensors**

EGA4 uses long life, low maintenance sensors. The operator can set alarm levels with audible buzzer on gas measurements.

### **CO sensor protection**

An automatic valve excludes flue gas from entering the CO sensor if excessively high and damaging CO levels exist.

### **Rechargeable battery operations**

Ni-MH rechargeable batteries provide longer field use. A charger is supplied as standard. Either batteries or the charger can power flue gas analyzer and internal printer.

### **Keyboard & Display**

Text, menus, and keyboard use common language (not icons), for simple and intuitive operations. Engineering units are selectable for US and European standards. The large backlight graphical LCD display is easy to read and can display 3, 6, or 12 values per page (zoom) or in bar graph format.

### **Multi Fuel selection**

EGA4 allows selection of up to 10 fuels for calculating combustion values. The most commonly used fuels are factory pre-loaded for quick selection. Other fuel parameters can be loaded using optional PC software.

### **Built-in impact printer**

A built-in rugged impact printer uses a common low cost roll of paper. The result is a more readable, longer life and heat resistant record than thermal printouts on chemical paper.

### **Pressure/Draft input**

Differential pressure input can be used to verify draft, gas pipe leak with pressure decay program, gas flow delta-pressure, pressure in combustion chamber, DP on filters and fan, and limit switch calibration.

### **Smoke index**

The results of using an optional external hand pump for smoke index measurement can be stored and printed on the report.

### **Gas sampling probe**

The sampling probe is connected to the instrument with a dual hose through a water trap and a suspended particle filter and includes a built-in temperature probe.

### **Water trap**

The new proprietary design trap prevents water from entering and damaging the instrument and measuring cells. It features a big water tank capacity for condensation, a small rubber plug for easy water removal, and a long life paper filter.

### **Combustion air temperature sensor**

An optional Pt100 probe can measure remote combustion air temperature.

### **Ambient monitoring**

An external optional probe is available for continuous surveillance of ambient safety conditions and alerts the operator with both acoustic and visual alarms.

### **Gas pipe leak test**

The internal pressure sensor and a pressure decay program can check gas valves and pipes for the presence of leaks.

### **Gas leak sniffer**

An external optional probe is available to locate the position of a gas leak. This probe has a flexible stainless steel shaft to reach difficult locations.

### **T+RH ambient monitoring**

An external optional probe measures ambient room temperature and relative humidity for comfort index computations or process quality data.

### **Ionization flame tester**

An external optional probe checks the ionization current in flame control sensor (flame-rod).

### **Gas velocity**

An external Pitot probe connected to the differential pressure ports measures gas velocity and is automatically displayed based on the gas density parameter.

### **Flash memory**

The flash memory allows the instrument firmware to be updated for any future legislation requirement or upgrading product performance.

### **Standard Report of Calibration**

Each instrument is factory calibrated and certified against traceable standards and shipped with a Report of Calibration.

**EGA4** includes the basic measuring instrument with O<sub>2</sub>, CO, NO, and NO<sub>2</sub> cells, gas sample probe with temperature and draft measurement, printer, differential pressure sensor, infrared serial RS232 port, rigid plastic carrying case, battery charger, instruction manual, and calibration certificate.

## ***Accessories***

Item	Description
10002732	Printer paper roll, 18m (60').
10002734	Printer ribbon.
10002729	Kit, water trap with air filter and connector.
10002711	Kit, filter cartridge.
10002725	Kit, rubber plug for water trap.
10002730	O-ring, analyzer, pneumatic connector
10002740	Probe, analyzer, 300mm (12in.) pistol grip, gas and draft, dual hose, 800°C max
10002741	Probe, analyzer, 750mm (30in.) pistol grip, gas and draft, dual hose, 1000°C max
10002700	Hose, analyzer, 6 m long extension dual hose for gas and draft
10002746	Probe, remote air sensor with 2 meter cable length.
10002748	Probe, remote air sensor with 5 meter cable length.
10002749	Probe, temperature and relative humidity.
10002736	Probe, ambient CO.
10002744	Probe, external flame ionization current.
10002745	Probe, natural gas (sniffer).
13160	Kit, smoke measurement index with pump, chart, filter paper
13157	Kit, filter paper for smoke measurement, 40 strips
13155	Scale, smoke index comparison chart
10002687	Case, analyzer, ABS rigid plastic (instrument+probe+accessories)
10002688	Case, analyzer, aluminum (instrument+probe+accessories)
10002689	Case, analyzer, vinyl with shoulder strap (instrument+probe+accessories)
10002731	Plate, analyzer, magnetic mounting with shoulder strap
10002695	Cell, EGA analyzers, O <sub>2</sub> autocalibrated
10002684	Module, power, 12Vdc automotive plug battery charger.
10002676	Module, power, 115V 50/60 Hz USA plug.
10002673	Module, power, 230V 50/60 Hz European plug.
10002674	Module, power, 230V 50/60 Hz Schuko plug.
10002675	Module, power, 230V 50/60 Hz UK plug.
10002677	Module, power, 100V 50/60 Hz USA/Japan plug.
10002672	Software, flue-gas analyzer, PC configuration and data (GasConfig).
10002685	Module, IR/RS232 convertor with cable.

## Specifications

<b>Type:</b> palm-top combustion gas analyzer for 4 gas sensors.	<b>Printer:</b> Internal impact type 24 columns with 58 mm paper roll (18 meters long).
<b>Calibration:</b> automatic calibration procedure at instrument switch-on.	<b>Printer power supply:</b> from the analyzer battery pack.
<b>Self-diagnosis:</b> Sensors efficiency test with display of diagnostic messages.	<b>Print capability:</b> up to 40 reports with full battery (typical).
<b>Fuel types:</b> Up to 10 selectable from keyboard.	<b>Service and user information:</b> 3 programmable lines.
<b>Flue gas probes:</b> stainless steel shaft with incorporated temperature sensor.	<b>Printed report header:</b> 4 programmable lines.
<b>Display:</b> 40x58 mm graphic LCD with backlight device.	<b>Serial communication:</b> Optical infrared RS232 serial interface.
<b>Memory:</b> up to 250 full analysis data structured by locations (Tags).	<b>Operating temperature:</b> from -5°C to +45°C
<b>Power supply:</b> High capacity Ni-MH rechargeable battery pack / external battery charger.	<b>Storage temperature:</b> from -20 to +60°C (3 months maximum at temperatures exceeding the operational limits).
<b>Charging time:</b> 8h at 90% with instrument off.	<b>Dimensions:</b> 115x90x330 mm
<b>Battery life:</b> 6 hours (typical) continuous use (without printing and backlight).	<b>Weight:</b> 1.1 kg with battery and printer

## Accuracies

Parameter	Sensor	Range	Resolution	Accuracy
O <sub>2</sub>	Electrochemical	0 - 25%	0.1%	±0.1% vol
CO (H <sub>2</sub> compensated)	Electrochemical	0 - 8000 ppm	1 ppm	±10 ppm <300 ppm ±4% rdg up to 2000 ppm ±10% rdg >2000 ppm
CO <sub>2</sub>	Calculated	0 - 99.9%	0.1%	
NO	Electrochemical	0 – 4000 ppm	1ppm	±5 ppm <125ppm ±4% rdg up to 4000 ppm
NO <sub>2</sub>	Electrochemical	0 - 1000ppm	1ppm	±5ppm <125ppm ±4%rdg up to 1000ppm
NO <sub>x</sub>	Calculated	0 - 5000ppm		
T <sub>air</sub>	Pt100	-10 - 100°C	1°C	±(0.2% + 0.15°C)
T <sub>gas</sub>	Tc K	0 - 1000°C	1°C	±(0.3% + 0.3°C)
Differential Temp.	Calculated	0 - 999°C	0.1°C	
Pressure/Draft	Piezo	±100 hPa ±40" w.c.	0.01 Pa 0.01" w.c.	±3Pa <300 Pa ±1% rdg. >300 Pa
Excess air	Calculated	1.00 - infinity	0.01	
Gas speed	Calculated	0 – 99.9 m/s	0.1 m/s	
Efficiency	Calculated	1 - 99.9%	0.1%	
<p><i>All emission measurements can be displayed with reference to a programmable O<sub>2</sub> value. NO<sub>x</sub> concentration can be shown in terms of stack equivalent NO<sub>2</sub>. Accuracy limits are stated as % of reading. An additional ±1 digit error has to be considered. The stated pressure relative accuracy is valid only after the zero procedure. Measuring display readings can be directly converted from ppm to mg/Nm<sup>3</sup>. Measuring display readings can be directly converted from hPa to mmH<sub>2</sub>O, mbar, or inH<sub>2</sub>O.</i></p>				



**Eclipse Combustion**  
www.eclipsenet.com