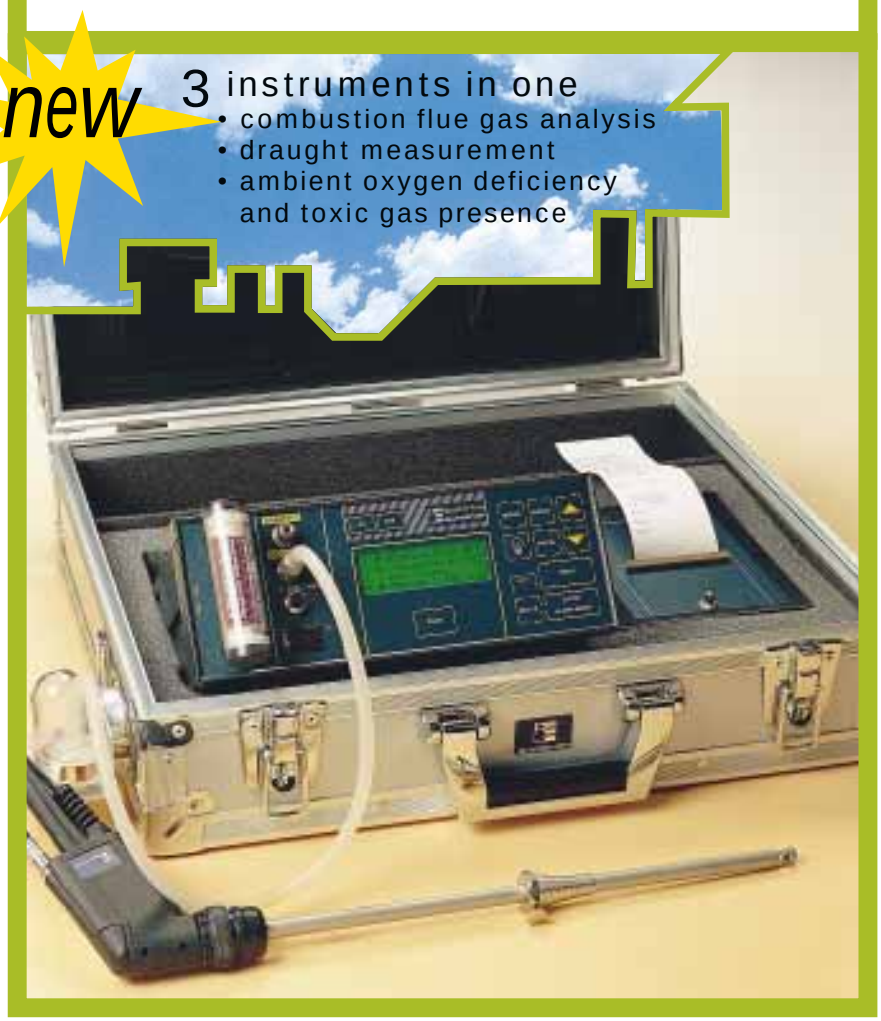
GAS ANALYSIS

Portable analyzer

Portable combustion flue gas analyzer
"EcoLine Plus"

- **Direct analysis of:**
  - **O_2** (oxygen)
  - **CO** (carbon monoxide)
- **Auxiliary measurements:**
  - **Tgas** (flue gas temp.)
  - **Ta** (air temperature)
- **Calculated parameters:**
  - **CO_2** (carbon dioxide)
  - **Reference to a % of O_2**
  - **ΔT** (temperature difference)
  - **η** (efficiency)
  - **λ** (excess air)
- **Options on request:**
  - **NO** (nitrogen monoxide)
  - **NO_2** (nitrogen dioxide)
  - **NO_x** (nitrogen oxides)
  - **SO_2** (sulphur dioxide)
  - **P** (draught)
  - **Smoke** (Smoke index)
  - **Memory for 250 analysis**
  - **Data comm with PC**
  - **Printer**
  - **Multi language text**



eurotron

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KC 94.24

Eurotron
One of the world leaders in high technology equipments:
- portable analyzers
- high accuracy calibrators
-non contact IR thermometers

EcoLine Plus fulfil the requirements of heating boiler operators and inspectors as an easy to use and reliable tool for maintenance, efficiency control and emission monitoring.
Features and specifications are in agreement with standards and legislation targeting efficiency improvement and emissions control.

Innovative design

Over 15 years of experience in the design and manufacturing of high accuracy portable equipments has given a strong contribution in the design of an innovative instrument.

Ambient monitoring innovative feature for operator safety (oxygen deficiency and/or toxic gas presence)
- *modular structure for later extension*
- *"help" and diagnostic informations*
- *fast battery recharge*
- *8 hours operation battery life*
- *factory calibrated against traceable Standards and shipped with a Report of Calibration*
- *impact type printer*
- *built in real time clock and calendar*
- *simplified instrument maintenance with precalibrated sensors*
- *case with internal metal coating for RFI and EMI protection.*

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GAS ANALYSIS

ORDERING CODES

784 A-B-C-DDDD-E-F-G

Table A — Base configuration
- **2** 2 sensors O_2 + CO
- **3** 3 sensor O_2 + CO + "X"

Table B — 3° sensor ("X")
- **4** NO (and calculated NO_x)
- **5** NO_2
- **6** SO_2
- **9** special

Table C — Type of probe (Tc K)
- **1** 220 mm standard
- **2** 220 mm with filter holder for smoke index

Table D — Water separator
- **1** Water trap

Table E — Options on request
- **0** None
- **1** Memory for 250 analysis and set-up software
- **2** Draught/pressure
- **3** Printer module
- **4** Smoke measurement (require suff. C = 2)

Table F — Protective case
- **0** None
- **1** Leather case
- **2** Alluminium case
- **3** ABS case

Table G — Line charger cable
- **1** USA plug
- **2** Schuko plug
- **3** UK plug
- **4** European plug

THE IDEAL TOOL TO:

- **Improve plant performance**
- **Energy saving through efficiency improvement**
- **Emission monitoring to control and reduce pollution**
- **Increase plant safety**
- **Lower cost of plant and system maintenance**
- **Improve operator safety**

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E  EcoLine Plus  E

18:01:46  20/02/95 S

Fuel type :
       Gas oil

O2   :  2,8  %
CO2  : 13,2  %
λ    : 8,80
Tgas:  188 °C
Tamb:   33 °C
Tdif:  155 °C
Eff  : 93,0  %
Loss: 7,00  %
CO   :  126 ppm
NOx  :  118 ppm

O2 Ref   :    0 %
CO   :  150 ppm
NOx  :  xxx ppm

P    : -0.2 hPa
Smoke B: 1 2 1

  WARM Ltd
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```

Printed report

SPECIFICATIONS

- **Type:** Flue gas analyzer configurable with 2 or 3 gas sensors.
- **Measuring ranges and limit of error:** see table
- **Display** High contrast LCD with backlight device
- **Type of combustible:** up to 10 programmable.
- **Response time:** maximum 50s at 95% step variation
- **draught / pressure:** temperature compensated piezoresistive sensor
- **ambient monitoring** oxygen deficiency and toxic gas presence
- **Diagnostic routine:** check automatically all operative modes and sensors dispaying status and warning messages
- **Power supply:** - internal rechargeable battery; - fast charge internal module - universal from 86V to 264V.
- **Battery life:** 8 h continuous operation
- **Data memory** (optional)**:** 250 full analysis with data,time and analysis code.
- **Printer** (optional)**:** impact type 24 column 58 mm paper roll (length 18 mt).
- **Smoke measurement:** require a probe equipped with filter paper slot.
- **Printed report data:** 3 programmable lines (16-characters).
- **Digital port:** RS-232 bidirectional
- **Working temperature:** from -5°C to +45°C (short term up to 50°C).
- **Storage temperature:** from -20°C to +50°C (max 3 month at temperature exceeding the operative limits).
- **Dimensions and weight:** 220 x 160 x 98 mm 4.5 kg

MEASURING RANGES AND ERROR LIMITS

Parameter	Sensor	Ranges***	Resolution	Accuracy**
O_2	Electrochemical	0-25%	0,1%	±1% vol.
CO	Electrochemical	0-4000/20000 ppm	1 ppm	±4%
NO	Electrochemical	0-2000/4000 ppm	1 ppm	±4%
NO_2	Electrochemical	0-800 ppm	1 ppm	±4%
NO_X	Calculated	0-2000 ppm	1 ppm	±4%
SO_2	Electrochemical	0-2000 ppm	1 ppm	±4%
CO_2	Calculated	0-100,0 %	0,1%	
Tair	Pt100	–10 to +100°C	1°C	±0,5%
Tgas	Tc K/N	0-1000/1300°C	1°C	±0,25%
	Tc S	0-1600°C	1°C	±0,25%
Pressure /Draft/ΔP	bridge	–20 to +50,00 hPa	0,01 hPa	±2%
Excess air (λ)	Calculated	1,00 ÷ infinity	0,01	
Efficiency/Stack loss	Calculated	0 - 100,0%	0,1%	
Smoke	Paper filter method	0 ÷ 9 smoke index scale		
Differential temperature	Calculated	0 - 1000°C	0,1°C	

All accuracy statements are ± 1digit
** Accuracy stated as % of reading. CO <300 ppm and NO, NO_2, NO_X, SO_2 <100 ppm = ± 5 ppm
*** Ranges can be directly converted from ppm to mg/Nm³ and from hPa to mmwc, mbar, inwc

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