



Small, low cost hand-held combustion analyser using electrochemical sensors

A full-blood analyzer despite compact size. This flue gas analyzer can be fitted with up to 3 electrochemical sensors. This is an attractive alternative to other, larger flue gas analyzers on the market. Is especially suited to short-term measurements on small burner systems. Designed according to EN50379

Operating data

Parameter	Description
Size	228 x 72/117 x 47 mm
Weight	0.6 kg
Probe	with condensate trap and filter
Probe length	150 mm
Length of gas line	2 m
In line filter	in-line, Filter 20 µm
Gas pump	Membrane pump
Display	LCD graphic display 36 x 66 mm
Power supply	6 V (4 x AA) Battery, or external power supply 9 VDC
Operating temperature	10 °C ÷ 50°C
Storage temperature	-20 °C ÷ +55 °C
Ambient humidity	5 - 90 %, non-condensing

Standard and optional configuration

Measurement of gas concentrations

- ◆ Standard version with two gas sensors: O₂, CO
- ◆ Optional gas sensor NO
- ◆ CO ambient measurement with a resolution of 0.1 ppm

Measurement of other parameters

- ◆ Measurement of gas and ambient temperatures
- ◆ Pressure, draft and differential pressure measurements with 0.1 Pa resolution
- ◆ Flow velocity measurement
- ◆ Relative humidity measurement probe - optional

Calculation

- ◆ CO₂ concentration
- ◆ Calculation of all relevant combustion parameters

Processing and presentation of measuring data

- ◆ All results shown on display
- ◆ Averaging of all measured values. Averaging time: 2, 10, 20, 30, 60, 120, 180 seconds
- ◆ Graphical presentation of all measured values as diagram
- ◆ Storage for 16 measurements - "measure now, print later"
- ◆ Powerful PC program for flue gas analyzer settings and data communication

Software capabilities

- ◆ Automatic zeroing when the analyzer is switched on
- ◆ All settings for the analyser carried out with PC programm
- ◆ List of 6 common fuels (from DIN or OENORM)
- ◆ 4 further freely programmable fuels
- ◆ Permanent automatic check of the instrument with acoustic warning and full information in the "control list"

Hardware capabilities

- ◆ Integrated clock/calendar
- ◆ IR interface for external printer
- ◆ Incredible 75 hours operating time from one set of batteries
- ◆ Full graphic display LCD 66 x 36 mm
- ◆ Gas probe with thermocouple and condensate trap
- ◆ RS-232C interface and multifunctional PC program
- ◆ Updateable FLASH ROM program memory
- ◆ Simple, intuitive operation, like a mobile phone

Optional accessories

- ◆ leather-look case for storage and rubber boot for protection of the instrument
- ◆ Magnetic plate to attach the instrument to steel surfaces
- ◆ External thermal printer with wireless IR communication

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Sensonic 1200

Parameter	Method	Indication range	Display resolution	Accuracy	Detection limit	Response time (t90)
Gases measured in standard configuration						
O ₂ - oxygen, volumetric concentration	electrochemical gas sensor	0...25 %	0.01%	0.2%	0.2%	45 s
CO ₂ - carbon dioxide, volumetric concentration	calculated from volumetric concentration of O ₂	0..25 %	0.01%	0.2%	0.2%	45 s
CO - ambient carbon monoxide, volumetric concentration	electrochemical gas sensor	0...100 ppm	0.1 ppm	±1 ppm or 5 % rel.	1 ppm	45
CO - carbon monoxide, volumetric concentration	electrochemical gas sensor	0...20,000 ppm	0.1 or 1ppm as set	± 5 ppm or 5 % rel.	5 ppm	45 s
CO _{mg} - carbon monoxide, mass concentration	calculated from volumetric concentration of CO	0...	1mg/Nm ³	± 10 mg/Nm ³ or 5 % rel.	10mg/Nm ³	45 s
CO _{rel} - carbon monoxide, mass concentration relative to O ₂	calculated from volumetric concentration of CO and O ₂	0...	1mg/Nm ³	± 10 mg/Nm ³ or 5 % rel.	10mg/Nm ³	45 s
Gases measured with optional electrochemical sensors						
CO - carbon monoxide, volumetric concentration	electrochemical gas sensor	0...20.000ppm	1 ppm	± 5 ppm or 5 % rel.	5 ppm	45 s
CO - carbon monoxide, volumetric concentration	electrochemical gas sensor	0...10 %	0.01 %	± 0.05 % or 5 % rel.	0.01 %	45 s
NO - volumetric concentration of nitric oxide	electrochemical gas sensor	0..1000 ppm	1 ppm	±5 ppm or 5 % rel.	5 ppm	45 s
NO _{mg} - mass concentration of nitric oxide	calculated from volumetric concentration of NO	0...	1 mg/Nm ³	±10 mg/Nm ³ or 5 % rel.	3 mg/Nm ³	45 s
NO _{rel} - mass concentration of nitric oxide relative to O ₂	calculated from volumetric concentration of NO and O ₂	0...	1 mg/Nm ³	±10 mg/Nm ³ or 5 % rel.	3 mg/Nm ³	45 s
Other measured values						
T _{gas} - flue gas temperature	Thermocouple	-10..1000°C	0.1 or 1°C set by user	±2 °C or 1.5 % rel.	1 °C	30 s
T _{amb} - ambient temperature	Thermistor	-10..100°C	0.1 or 1°C set by user	± 1 °C	1 °C	30 s
Pressure	DMS bridge	-25 hPa ... +25 hPa	0.1 or 1 Pa set by user	±2 Pa or 5 % rel.	1 Pa	10 s
Diff. Pressure	DMS bridge	-25 hPa ... +25 hPa	0.1 or 1 Pa set by user	±2 Pa or 1 % rel.	1 Pa	10 s
V - flow velocity	Pitot tube	1..30 m/s	0.1 m/s	0.5 m/s or 2 % rel.	1 m/s	10 s
rH - relative humidity	capacitive sensor	5..95 %	0.01 %	2 % rH or 2 % rel.	5 %	10 s
Soot/smoke test	Bacharach method	0..9	0.5	0.5	0.5	
TI (CO/CO ₂ -Toxic Index)	calculated	0...0.01	0.0001	5 % rel.	0	45 s
Lambda - excess air number	calculated	1..10	0.01	2 % rel.	0	45 s
q _A - combustion losses	calculated	0..100 %	0.1 %	2 % rel.	0 %	45 s
Eta - efficiency	calculated	0..120 %	0.1 %	2 % rel.	0 %	45 s