Compact gas analyser ideal for all adjustment and control work at industrial plants.

ecom® *D*

ecom®
improve the important

Flue Gas Analysis
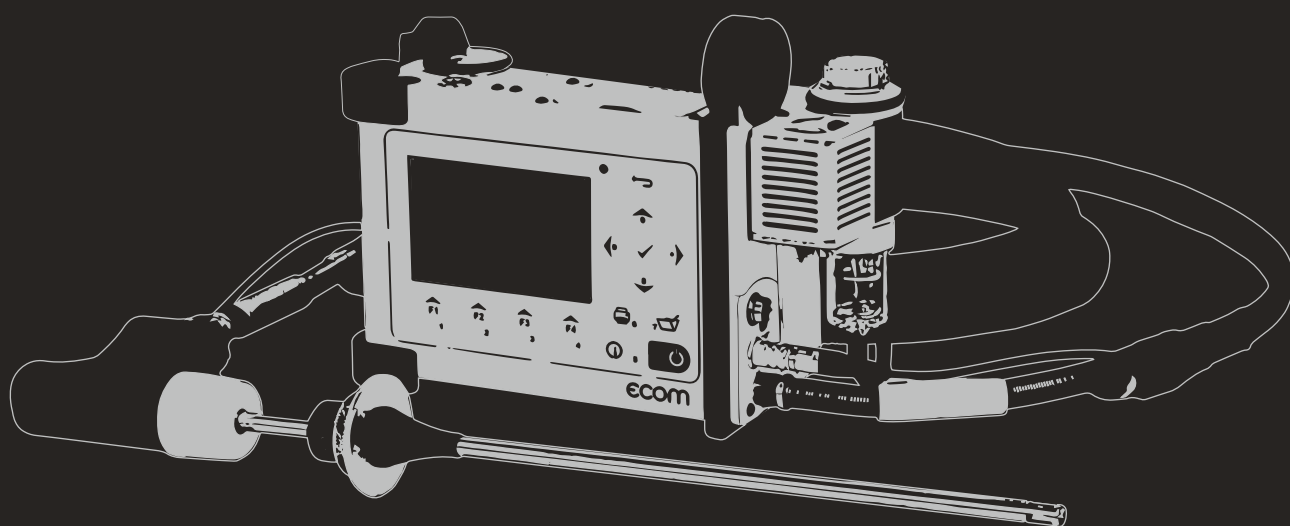
ecom PRODUCTS OFFER YOU MANY BENEFITS...

EXTREM EFFICIENT.

The high output level (up to 2.6 liters/minute) not only enables ecom analyzers to provide a fast reading: It also makes it possible to bridge long distances during sampling, or negative pressre in the application. Manometers also provide readings in record time.

EXTREM ACCURATE.

The reading accuracy of gas sensors (CO, NO, SO_2) is determined and adjusted at 5, 20 and 40°C in the climatic test chamber using standarized test gases. High-quality sensors provide a perfect reading for pressuremeasurements.

EXTREM COMPLETE.

ecom analyzers are sold and designed as an entity (device, probe, probe hose, case). In addition: Printer paper and filter, a solid shoulder strap, PC software and Apps.

EXTREM COOL.

The drier, the better: The gas to be measured is continually cooled to 5°C using a gas cooler. This way, the drying processis controlled. Collected condensate can be easily emptied in some cases this occurs in automatic mode.

EXTREM FAR-REACHING.

ecom analyzers communicate wirelessly: Via Bluetooth, WLAN (wider range, more stable connection), as well as radio (highest range with the most stable connection). This way instruments can be remote-controlled via e.g smartphones or ecom remote control unit.

EXTREM ROBUST.

Hard on the outside - even harder on the inside! Almost all ecom measuring devices are housed in an ultra-light aluminium casing. Its durability pays off in its daily use - especially in rougher conditions.

EXTREM SAFE.

The condensation control protects from moisture. An automatic CO shut-off (flushing of the CO sensor) without interruption of the measuring process ensures the long lifespan of the CO sensor. Each ecom instrument has its own „safety equipment."

EXTREM LOSS-FREE.

To measure the full concentration of extremly water soluble gases an inner PTFE coated hose or a heated sampling system are available. This guarantees the fast and condensate free flue gas transport.

...BY EVERY APPLICATION.

HEATING
For control and adjustment works in order to reduce emissions and to optimize the efficiency of heating plants.

ENGINES
For inspection and adjustment work, e.g. during commissioning and maintenance ofGas engines, CHP plants and plants for combined heat and power, as well as for the exact assessment of NO_x emissions.

COMBUSTION
Combustion gas analysers, pressure meters, leak detectors and more for control and adjustment works at burners and large-scale firing plants in order to reduce emissions, to arrange for a more efficient combustion process and to optimize the thermal process.

INDUSTRY
Combustion gas analysers, pressure meters, leak detectors and more for the perfect preparation of water-soluble gases (i.a. NO_2 and SO_2) by industrial applications (like e.g. aluminium process, coke oven plants, cement processing, power plants, refineries, waste incineration…).

Overview of technical data

ecom®

Flue gas analyser model				D
Gas Components		Resolution	Accuracy	max. 6
O_2	O_2 (0 - 21 vol.%) - electrochemical	0,1 vol.%	± 0,3 vol.%	√
CO	CO (H_2-komp. 0 -10.000 ppm) - electrochemical	1 ppm	± 20 ppm or 5 % of reading**	√
	CO (n. H_2-komp. 0 -20.000 ppm) - electrochemical	1 ppm	± 40 ppm or 10 % of reading**	•
	CO% (0 -63.000 ppm) - electrochemical	5 ppm	± 100 ppm or 10 % of reading**	•
CO_2	CO_2 (0 - 20 vol.%) - NDIR* sensor	0,1 vol.%	± 0,5 vol.% or 5 % of reading**	•
	CO_2 (0 - 100 vol.%) - NDIR* sensor	0,1 vol.%	up to ± 5 % of measur range endvalue	•
NO_x	NO (0 - 5.000 ppm) - electrochemical	1 ppm	± 5 ppm or 5% of reading**	•
	NO_{Low} (0 - 500 ppm) - electrochemical	0,1 ppm	± 2 ppm or 5 % of reading**	•
	NO_2 (0 - 1.000 ppm) - electrochemical	1 ppm	± 5 ppm or 5 %of reading**	•
	$NO_{2\,Low}$ (0 - 1.000 ppm) - electrochemical	0,1 ppm	± 5 ppm or 5 % of reading**	•
	NO_x - measuring - electrocemical			via NO/NO_2
SO_2	SO_2 (0 - 5.000 ppm) - electrochemical	1 ppm	± 10 ppm or 5 % of reading**	•
H_2	H_2 (0 - 2.000 ppm) - electrochemical	1 ppm	± 10 ppm or 5 % of reading**	•
	H_2 (0 - 20.000 ppm) - electrochemical	1 ppm	± 100 ppm or 5 % of reading**	•
H_2S	H_2S (0 - 1.000 ppm) - electrochemical	1 ppm	± 10 ppm or 5 % of reading**	•
	H_2S (0 - 5.000 ppm) - electrochemical	1 ppm	± 50 ppm or 5 % of reading**	•
C_xH_y	CH_4 (0 - 5 vol.%) - NDIR* sensor	0,01 vol.%	± 0,2 vol.% or 5 % of reading**	•
	CH_4 (0 - 100 vol.%) - NDIR* sensor	0,1 vol.%	up to ± 5 % measur range endvalue	•
Additional Measurements | Display Options		Resolution	Accuracy	
T-Gas	0 - 500 °C	1 °C	± 2 °C or 1,5 % of the reading**	√
	0 - 1.100 °C	1 °C	± 2 °C or 1,5 % of the reading**	•
T-Air	0 - 99 °C	1 °C	± 1 °C	√
Pressure | ΔP	± 100 hPa	0,01 hPa	± 0,5 hPa or 1 % of the reading**	√
Calculated values				
CO_2 - 0 - CO_2 max				√
Combustion efficiency (ETA)				√
Excess air (Lambda) - > 1				√
Losses qA - 0 - 100 %				√
Dew point - x °C				√
mg/m³ - x mg/m³				√
mg/KWh - x mg/KWh				√
O_2 - reference- x % O_2				√
Gas processing				
Condensation trap with moisture-absorbing pad				•
Electronic condensation monitoring				•
Electronic gas cooler				•
Operation safety				
Temperature trend indication for core stream search				√
CO switch-off				√
Fresh air purge by CO exceeding				√
Fresh air purge after operation				√
Sampling system				
Unheated probe, type SB				√
Gas transportation (tubing hose)				
Multi-chamber silicone tubing				√
NO_x / SO_x special tubing with PTFE inner coating				•
Printer				
Infrared interface for external printer				√
Thermal quick-printer, integral				•
Data processing				
Serial interface for data transfer				√
USB interface for data transfer				√
Wireless data interface (e.g. for connection to a smartphone or tablet)				√
Data recording on mulimedia card				•
Reception possibility for diagnosis data from ecom-AK				√
Remote control				
via backlit keypad				√
via smartphone/tablet (free iOS + Android app)				max. 6
Transport				
Carrying bag				•
Hardtop transport case				•

* NDIR = non dispersive infrared technology

** the higher value prevails

√ **Standard**   • Option

ecom® D

FLUE GAS ANALYSIS

ecom-D EASY

**HANDHELD FLUE GAS ANALYZER FOR
INDUSTRIAL APPLICATIONS**

- O_2 / CO (H_2-comp.) Longlife sensors
- Up to 6 sensors (Longlife sensors)
- Direct CO_2 measurements via IR sensor
- Measuring of hydrocarbons via IR sensor
- CO sensor overload protection without measurement interruption
- Condensate trap or sample gas cooler including electronic condensate monitoring (depends on equipment package
- Sampling probe (250 mm) incl. thermocouple, cone and 3-chamber hose (2.6 m.)
- T-room stick
- Powerful Lithium-Ion battery
- Back-lit display and keypad
- Aluminum housing (ultralight)
- Calibration certificate - issued after 100 % - sensor calibration in the climate chamber
- Free PC software

Dimensions (W x H x D) 220 x 125 x 85 mm (without case)
Weight approx 2 kg (includes probe and sample line without case)

ADDITIONAL OPTIONS

- Additional sensor options (SO_2, H_2S, H_2, CO%)
- NO_x calculation via NO sensor NO_x measurement
- Higher resolution and accuracy in the NO_{Low} (0-500 ppm) or $NO_{2\ Low}$ (0-100 ppm) range
- NO_x tubing in length 3,5 m or 5 m
- Replaceable probe attachments in different lengths

Measureable Gases

O_2	CO	NO	NO_2
H_2	CO%	H_2S	SO_2
CO_2			

● = Base; ● = Optional EC; ● = Optional NDIR

ACCURATE   ROBUST   EFFICIENT   SAFE

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Testing according to DIN EN 50379-2
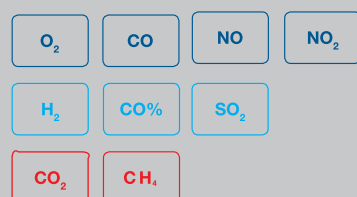and 1st. BImSchV.

ecom-D EXPERT

**FOR PERFECT NO_x /SO_2 MEASUREMENTS
E.G. AT INDUSTRIAL APPLICATIONS**

- O_2/CO (H_2 comp.)/ NO/ NO_2 Longlife sensors
- Automatic CO shut-off and flushing (without interruption of the measurement)
- With thermal-quick-printer
- Sample gas cooler including electronic condensate monitoring
- Delivered in an ultralight aluminum housing
- Durable magnetic attachment on the back of the housing
- With sampling probe including thermocouple, cone and hose
- T-Room sensor/T-Room stick (at choice or depending on package selected)
- Fitted in hardtop transport case

ecom-D ENGINE

FOR MEASUREMENTS AT CHPS AND ENGINES

- With electronically monitored sample gas cooler
- NO_x version (equipped with O_2 / CO / NO / NO_2 sensor)
- Up to a total of 6 gas sensors (including SO_2 or IR CO_2 or CH_4 sensors)
- Including miniature heat shield on the probe cone
- With thermal-quick-printer
- Preset for NOx measurements, with mg/m³ at 5% O_2 reference (freely adjustable)
- NO_x / SO_x tubing
- Fitted in hardtop transport case

Measureable Gases

O_2	CO	NO	NO_2
H_2	CO%	SO_2	
CO_2	CH_4		

● = Base; ● = Optional EC; ● = Optional NDIR

Measureable Gases

O_2	CO	NO	NO_2
SO_2	H_2	H_2S	
CO_2			
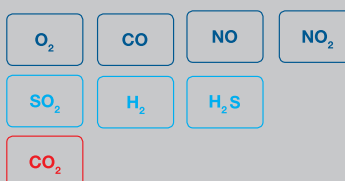
● = Base; ● = Optional EC; ● = Optional NDIR

FAR-REACHING   COMPLETE   COOL   LOSS-FREE

USEFUL

ecom-AK
**READOUT UNIT FOR DIGITAL AUTOMATIC
BURNER CONTROLLER**

- Automatic identification of
  automatic burner controller type
- Readout feature for errors and operating conditions
- Built-in display
- Data transfer via cable to PC or ecom-EN3 analyzer
- Data transfer via radio to the ecom-J2KNpro
  control panel (display + printing via emissions analyzer)

DISPLAYED DATA
- Display of recent and past failures
- Display of burner operating conditions
- Measurement of the flame signal/comparison with
  minimum value
- Checks of delayed flame development
- Detection of the number of burner starts
- Display of all relevant operating times (safety time, etc.)

Dimensions (W x H x D) approx. 88 x 41 x 32 mm
Weight approx. 322 g - incl. belt pouch

ROBUST   COMPLETE   EFFICIENT

ecom-AK will show the following display messages:

Automat DKO 972 / 22	Identification of burner controller (Honeywell-Satronic DKG, DKO, DKW, DMO, DMG, DLG, DVI, DIO, SH, SG incl. N versions as well as Siemens-Landis & Staefa LMG, LMO).
2.3µA 231V	Indication of burner operating mode.
2.2µA IS 1.2µA MIN	Measurement of flame signal and comparison with minimal value.
Rest time TSA 3.9 sec	Check if flame occurs immediately or with delays.
Current error Flame signal during straylight check !	Indication of current disturbance source as well as of 5 past disturbances.
Start-ups counter 664	Determination of burner starts.

ecom-UNO
FOR THE ADJUSTMENT OF GAS BURNERS /GAS HEATINGS

determine the:
- Device connection pressure (flow pressure)
- Nozzle pressure (flow pressure)
- Gas operating pressure (system pressure)
- Static pressure
- Switchable units: hPa / mbar, mmH_2O, psi, mmHg
- Measurement range: ± 200 hPa, ± 2038 mmH_2O,
  ± 2.9 psi, ± 150 mmHg
- Resolution: 0.01 hPa / 0.01 mmH_2O / 0.01 psi / 0.01 mmHg
- Accuracy: approx. 1%
- Overload: 300 hPa / 3060 mmH_2O / 4.35 psi / 225 mmHg

Dimensions (W x H x D) approx. 106 x 64 x 28 mm
Weight approx. 150 g

ecom-LSG
DETECTION OF FLAMEABLE GASES

- Three sensitivity levels adjustable
- Accoustic signal on/off at choice
- Display range up to 0.5% vol. CH_4, Response time: < 2 seconds
- Backlit bargraph
- Display approx. 20 x 7 mm
- 1-14 bars (10 bars = approx. 1000 ppm CH_4)
- Warm-up time: approx. 3 minutes
- Sensor temperature compensation (-5°C to 40°C)

Dimensions housing (W x H x D) approx. 155 x 35 x 22 mm
Swan-neck: approx. 355 mm
Weight: approx. 200 g

ACCESSORIES

Filter plate

Multi-level processing: water separation in condensate trap; pre filtering via fine particulte filter; silica gel drying; removal of sensor-damaging, organic compounds in the hydrocarbon filter.

Probe prefilter

Metal filter with the smallest filter pores; ideal for preventing that solid exhaust gas components enter into the probe/the flue gas tract.

Thermal printer

ecom-P thermal printer with infrared interface for wireless data transmission.

CO multi-hole probe

For the CO measurement of the CO concentration according to KÜO (sweeping and monitoring system) extendable from 80 to 280 mm.

Ring slot multi-hole probe

To measure the O_2 concentration in the Annular gap.

Contact sensor

Forerun and backrun temperature measurement.

T-Room-probe (PT 2000)

For measuring the room or intake air temperature - for example for concentric flue gas systems.

Soot pump set

Consisting of soot pump, soot comparison scale, piston lubricant oil, socket wrench and 200 soot test strips.

Transport bag

Textile bag with foam inlay.

Other accessories on demand.

ecom®

improve the important

HEADQUATER

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