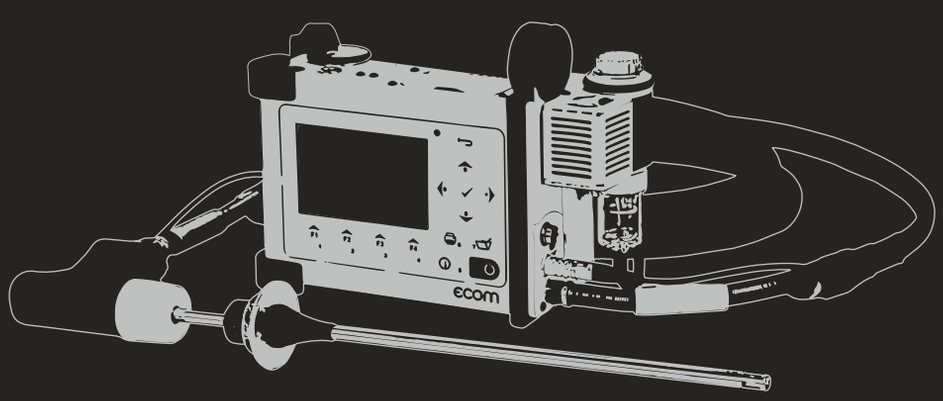
INTELLIGENT MESSEN!

MEASURE WITH INTELLIGENCE!

ecom® D

Flue Gas Analysis



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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 pressure 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 pressure measurements.

EXTREM COMPLETE.

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 pressure measurements.

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 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.

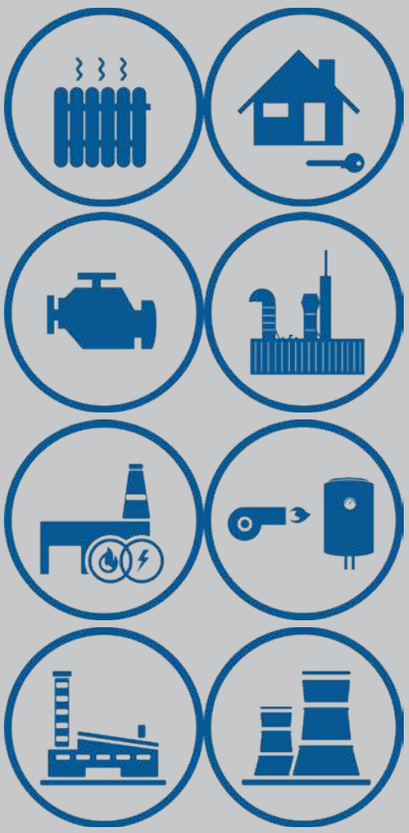
EXTREM SAFE.

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
Combustion gas analysers, pressure meters, leak detectors and more for the HVAC handicraft, chimney-sweep and heating after-sales service. For control and adjustment works in order to reduce emissions and to optimize the efficiency of heating plants.

ENGINES
For control and adjustment works among all by commissioning of gas engines, thermal power blocks, etc. as well for the perfect measurement of water-soluble gases like nitrogen oxide – especially recommended for the NO_x measurement.

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

√ Standard • Optional

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 - 300 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 SU				√
Gas transportation (tubing)				
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)				√
Transport				
Carrying bag				•
Hardtop transport case				•

* NDIR = non dispersive infrared technology

** the higher value prevails

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 measurement 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 sampling tubing (2.6 m)
- T-Room stick
- Powerful Lithium-Ion battery
- Backlit display and keypad
- Aluminum housing (ultralight)
- Calibration certificate
- Wireless data interface (e.g. for connection to a smartphone or tablet)

ADDITIONAL OPTIONS

- Additional sensor options (SO_2, H_2S, H_2, CO%, NO, NO_2)
- NO_x calculation via NO sensor NO_x measurement
- Higher resolution and accuracy in the NO_{Low} (0-300 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	C_xH_y
H_2	CO%	H_2S	SO_2	
CO_2				

■ = Base; ■ = Optional EC; ■ = Optional NDIR; ■ = Optional Pellistor

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)

ACCURATE ROBUST EFFICIENT SAFE

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

- NO_x version (equipped with O_2 / CO / NO / NO_2 sensor)
- Automatic CO shut-off and flushing (without interruption of the measurement)
- Sample gas cooler including electronic condensate monitoring
- With sampling probe including thermocouple (300 mm), cone and 3-chamber NO_x tubing (3.5 m)
- Integrated thermal fast printer
- Fitted in hardtop transport case

Measureable Gases

O_2 | CO | NO | NO_2 | C_xH_y
H_2 | CO% | H_2S | SO_2
CO_2

■ = Base; ■ = Optional EC; ■ = Optional NDIR; ■ = Optional Pellistor

ecom-D ENGINE

FOR MEASUREMENTS AT CHPS AND ENGINES

- 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)
- Electronically monitored sample gas cooler
- Preset for NO_x measurements, with mg/m³ at 5% O_2 reference (freely adjustable)
- With sampling probe (360 mm) including miniature heat shield on the probe cone, cone and 2-chamber NO_x tubing (3.5 m)
- Integrated thermal fast printer
- Fitted in hardtop transport case

Measureable Gases

O_2 | CO | NO | NO_2 | C_xH_y
H_2 | CO% | H_2S | SO_2
CO_2 | CH_4

■ = Base; ■ = Optional EC; ■ = Optional NDIR; ■ = Optional Pellistor

FAR-REACHING | COMPLETE | COOL | LOSS-FREE

USEFUL

ecom-AK

READOUT UNIT FOR DIGITAL AUTOMATIC BURNER CONTROLLERS

- **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 flue gas 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

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

- **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 FLAMMABLE 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

For measurement on concentric exhaust systems. Continuously extendable (80 to 280 mm) - with three easily replaceable sealing plugs for measuring openings from Ø 5 to 25 mm.

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.

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