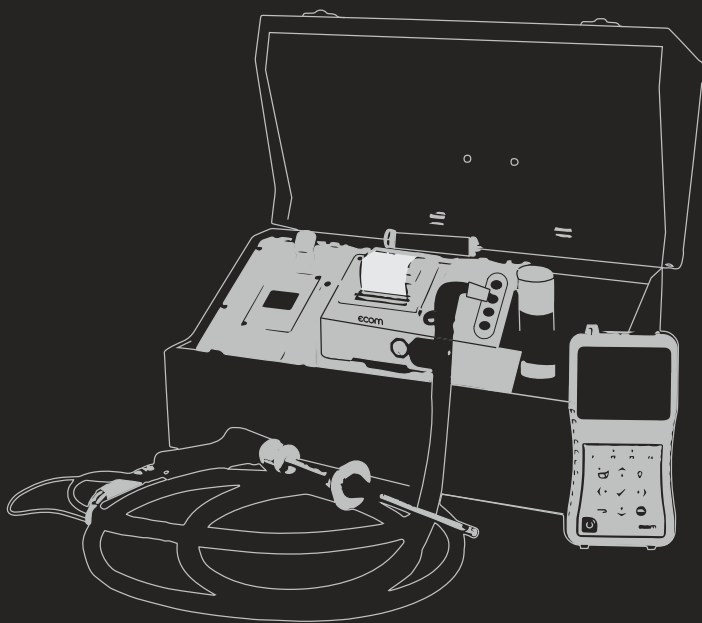


ecom

INTELLIGENT MESSEN!
MEASURE WITH INTELLIGENCE!

ecom[®] J2KN^{pro}
Flue Gas Analysis



ADDRESS

AM GROSSEN TEICH 2
D-58640 ISERLOHN

TEL.: +49 (0) 2371 | 945 - 5

FAX: +49 (0) 2371 | 40305

info@ecom.de

www.ecom.de

ecom GMBH

ecom PRODUCTS OFFER YOU MANY BENEFITS...



EXTREMELY 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.



EXTREMELY ACCURATE.

The reading accuracy of gas sensors (CO, NO, SO₂) is determined and adjusted at 5, 20 and 40°C in the climatic test chamber using standardized test gases. High-quality sensors provide a perfect reading for pressure measurements.



EXTREMELY COMPLETE.

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



EXTREMELY COOL.

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



EXTREMELY 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.



EXTREMELY 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.



EXTREMELY 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.“



EXTREMELY LOSS-FREE.

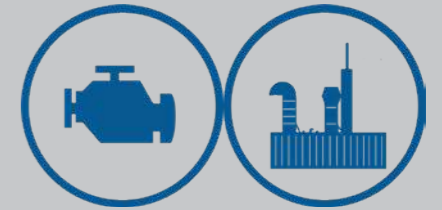
To measure the full concentration of extremely water soluble gases an inner PTFE coated hose or a heated sampling system are available. This guarantees the fast and condensate free flue gas transport.

...BY EVERY APPLICATION.



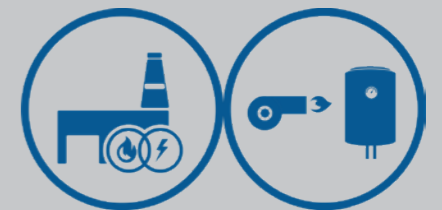
HEATING

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. NO₂ and SO₂) by industrial applications (like e.g. aluminium process, coke oven plants, cement processing, power plants, refineries, waste incineration...).

Overview of technical data

✓ Standard • Option x Not possible

Flue gas analyser model			J2KNpro	J2KNpro Industry	
Gas Components	Resolution	Accuracy	max. 6	max. 6 + NDIR*	
O₂	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% (0 -63.000 ppm) - NDIR* bank	10 ppm	± 200 ppm or 3 % of reading**	x	•
CO₂	CO ₂ (0 - 20 vol.%) - NDIR* sensor	0,1 vol.%	± 0,5 vol.% or 5 % of reading**	x	Optional: IR bank
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 - electrochemical			via NO/NO ₂	via NO/NO ₂
SO₂	SO ₂ (0 - 5.000 ppm) - electrochemical	1 ppm	± 10 ppm or 5 % of reading**	•	•
H₂	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**	•	•
H₂S	H ₂ S (0 - 1.000 ppm) - electrochemical	1 ppm	± 10 ppm or 5 % of reading**	•	•
	H ₂ S (0 - 5.000 ppm) - electrochemical	1 ppm	± 50 ppm or 5 % of reading**	•	x
C_xH_y	C _x H _y (0 - 4 vol.%) - catalytic	0,01 vol.%		•	•
	CH ₄ (0 - 100 vol.%) - NDIR* sensor	0,1 vol.%	up to ± 5 % measur range endvalue	•	•
	C _x H _y (CH ₄ 0 - 3 vol.%) - NDIR* bank	0,001 vol.%	± 0,005 vol.% or 3 % of reading**	x	•
	C _x H _y (C ₃ H ₈ 0 - 2.000 ppm) - NDIR* bank	1 ppm	± 4 ppm or 3 % of reading**	x	•
Additional Measurements Display Options					
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/m ³ - x mg/m ³			✓	✓	
mg/KWh - x mg/KWh			✓	✓	
O ₂ - reference- x % O ₂			✓	✓	

* NDIR = non dispersive infrared technology
** the higher value prevails

✓ Standard • Option x Not possible

Flue gas analyser model	J2KNpro	J2KNpro Industry
Gas processing		
Electronic condensation monitoring	✓	✓
Automatic condensation evacuation	✓	✓
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	✓	✓
Flow meter for pump performance control	✓	✓
Sampling system		
Heated probe, type SB	✓	•
Unheated probe, type SU	•	•
Heated probe with integrated PTFE filter and thermocouple (for heated sampling system)	x	•
Gas transportation (tubing hose)		
Multi-chamber silicone tubing	✓	•
NO _x / SO _x special tubing with PTFE inner coating	•	•
Heated tubing (in combination with heated sampling system)	x	•
Printer		
Thermal quick-printer, integral	✓	✓
Dot matrix printer	•	•
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 multimedia card	•	•
Reception possibility for diagnosis data from ecom-AK	✓	✓
Remote control		
via backlit keypad	✓	✓
via radio remote	✓	✓
via smartphone/tablet (free iOS + Android app)	✓	✓
Transport		
Aluminum-framed transport case	✓	✓
Under case	•	•

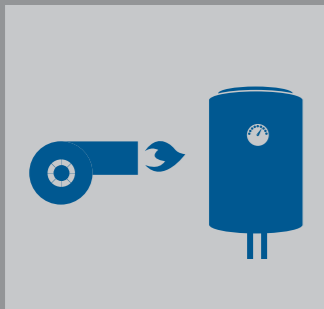
* NDIR = non dispersive infrared technology
** the higher value prevails

ecom® J2KN^{pro}

FLUE GAS ANALYSIS



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



ecom-J2KNpro EASY

POWERFUL FLUE GAS ANALYZER WITH RADIO REMOTE CONTROLLER

- O₂ / CO (H₂-comp.) Longlife sensors
- Up to 6 electrochemical sensors possible
- Durable aluminum housing fitted in aluminum framed case
- Brushless high-performance pump
- Powerful Lithium-Ion battery
- CO sensor overload protection without interruption of the measurement
- Multi-level sample gas filtering
- Electronic condensate monitoring
- Heated sampling probe (300 mm), cone and 3-chamber sampling tubing (3 m)
- Integrated soot measurement
- Integrated thermal fast printer
- Instrument internal heating
- Status display
- Calibration certificate
- Wireless data interface (e.g. for connection to a smartphone or tablet)

RADIO REMOTE CONTROL (INCLUDED IN DELIVERY)

- Wide coverage for bridging distances between the measuring point and adjustment point
- Includes thermocouple, mini-USB connection (data transfer to laptop / PC), SD card slot
- Foil keypad with high-quality TFT color display
- Display, printing and storage of measurement data
- Full instrument operation (including manual CO shut off, starting and terminating measurements, data processing, ...)
- Reliable data transfer via radio (best-possible prevention of interferences, bypassing of metal or concrete obstacles, automatic connection establishment, no abrupt disruption of connection with maintenance of all measuring data, as well as automatic connection and re-establishment of a radio connection)

Measurable Gases

O ₂	CO	H ₂	NO	NO ₂
SO ₂	CO ₂	C _x H _y	CH ₄	

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

Dimensions (W x H x D) app. 450 x 315 x 250 mm or. 510 x 330 x 250 mm (depending on version)
Weight app. 12 kg (in transport case)

ecom-J2KNpro EXPERT

FOR PERFECT NO_x /SO₂ - MEASUREMENTS

- NO_x version (equipment with O₂ / CO / NO / NO₂ sensors)
- Up to 6 electrochemical sensors possible
- Low-NO_x version also possible
- Sample gas cooler including electronic condensate monitoring and automatic condensate drain
- With heated sampling probe (300 mm), cone and NO_x tubing (3,5 m)

ADDITIONAL OPTIONS

- Additional sensor options (SO₂, H₂S, H₂, CO%)
- Higher resolution and accuracy in the NO-Low (0-500 ppm) or NO₂-Low (0-100 ppm) range
- Measurement of flow velocity in flue gas
- Probe tubing available in different lengths
- Exchangeable probe tips in different lengths (high-temperature and flexible versions)

Measurable Gases

O ₂	CO	NO	NO ₂	C _x H _y
CO%	H ₂	H ₂ S	SO ₂	CH ₄

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

ecom-J2KNpro ENGINE

FOR MEASUREMENTS AT CHPs AND ENGINES

- NO_x version (equipped with O₂ / CO / NO / NO₂ sensors)
- Up to a total of 6 gas sensors (including SO₂ or IR CO₂ or CH₄ sensors)
- Electronically monitored sample gas cooler
- Preset for NO_x measurements, as well as mg/m³ at 5% O₂ 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)



Measurable Gases

O ₂	CO	NO	NO ₂	C _x H _y
CO%	H ₂	H ₂ S	SO ₂	H ₂ S
				CO ₂
				CH ₄

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



ACCURATE



ROBUST



EFFICIENT



SAFE



FAR-REACHING



COMPLETE



COOL

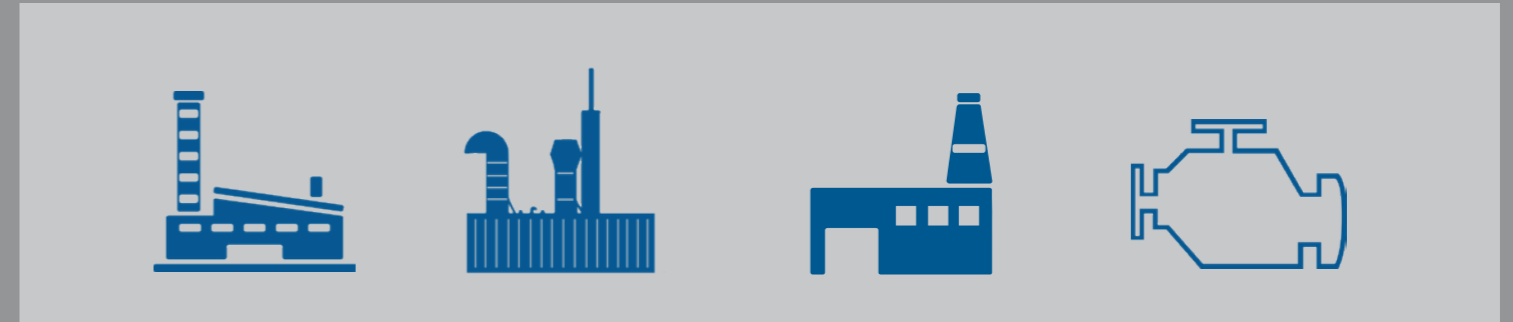


LOSS-FREE



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

ecom® J2KN^{pro} industry



ecom-J2KNpro INDUSTRY

EMISSION ANALYZER FOR INDUSTRIAL (PROCESS) MEASUREMENTS

- O₂ / CO (H₂-comp.) Longlife sensors
- More than 8 gas components (Longlife + NDIR)
- Up to 6 electrochemical sensors possible
- Possibility of additional infrared measurement of up to 3 gas components
- Durable aluminum housing fitted in aluminum framed case
- Brushless high-performance pump
- Powerful Lithium-Ion battery
- CO sensor overload protection without interruption of the measurement
- Multi-level sample gas filtering
- Electronic condensate monitoring
- Connection for heated sampling system
- TFT colour display and keyboard - illuminated
- Integrated thermal quick printer
- Instrument internal heating
- Foldable antenna
- Calibration certificate
- Wireless data interface (e.g. for connection to smartphone or tablet)

RADIO REMOTE CONTROL (INCLUDED IN DELIVERY)

- Wide coverage for bridging distances between the measuring point and adjustment point
- Includes thermocouple, mini-USB connection (data transfer to laptop / PC), SD card slot
- Foil keypad with high-quality TFT color display
- Display, printing and storage of measurement data
- Full instrument operation (including manual CO shut off, starting and terminating measurements, data processing, ...)
- Reliable data transfer via radio (best-possible prevention of interferences, bypassing of metal or concrete obstacles, automatic connection establishment, no abrupt disruption of connection with maintenance of all measuring data, as well as automatic connection and re-establishment of a radio connection)

FOR CONTINUOUS MEASUREMENTS UP TO 48 HOURS)

- Equipped for continuous measurements in plants (up to 48 hours) with programmable measurement intervals
- Connection for heated sampling system (accessory)
- Status display showing basic features, settings and alerts
- Large NO_x filter for protection of the CO sensor
- T-Room sensor/ T-Room stick (on request or depending on equipment package)
- Integrated soot measurement (included in standard delivery depending on probe equipment)

ADDITIONAL OPTIONS

- NO_x calculation via NO sensor or NO_x measurement (NO + NO₂ sensor) available
- Additional sensor options (SO₂, H₂S, H₂, CO%)
- Higher resolution and accuracy in the NO-Low (0-500 ppm) or NO₂ -Low (0-100 ppm) range
- Infrared measurement (NDIR) of CO₂ (direct measurement), CO-high as well as C_xH_y (calibrated to CH₄ methane or C₃H₈ propane)
- C_xH_y measurement via catalytic measuring method (Pellistor)
- Stainless steel sample gas cooler for loss-free sample gas treatment for water soluble gases
- Measurement of flow velocity in flue gas

Dimensions (W x H x D) approx 510 x 330 x 250 mm
Weight approx 14 kg (in transport case)

Measurable Gases

O ₂	CO	C _x H _y				
NO	NO ₂	H ₂ S	H ₂	C _x H _y	CO%	SO ₂
CO ₂	C _x H _y	CH ₄	CO%			

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



ACCURATE



ROBUST



EFFICIENT



SAFE



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



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

- Device connection pressure (flow pressure)
- Nozzle pressure (flow pressure)
- Gas operating pressure (system pressure)
- Static pressure
- Switchable units: hPa / mbar, mmH₂O, psi, mmHg
- Measurement range: ± 200 hPa, ± 2038 mmH₂O, ± 2.9 psi, ± 150 mmHg
- Resolution: 0.01 hPa / 0.01 mmH₂O / 0.01 psi / 0.01 mmHg
- Accuracy: approx. 1%
- Overload: 300 hPa / 3060 mmH₂O / 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
- Acoustic signal on/off at choice
- Display range up to 0.5% vol. CH₄, Response time: < 2 seconds
- Backlit bargraph
- Display approx. 20 x 7 mm
- 1-14 bars (10 bars = approx. 1000 ppm CH₄)
- 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 particulate 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.



Probe extension

For probe type Ø 8 mm, with flexible tube center piece. Is placed on the probe seats for measurements at difficult to reach, angled measuring openings.



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.



Under case

For the storage of accessories, tools, and small devices.

Other accessories on demand.

HEADQUARTER

ecom GmbH
Am Grossen Teich 2
58640 Iserlohn
GERMANY

www.ecom.de



ECOM AMERICA Ltd.
1628 Oakbrook Drive
30507 Gainesville, Georgia
USA

www.ecomusa.com

Ecom SAS
5, rue de Lisbonne
67300 Schiltigheim
FRANCE

www.ecom.fr

ecom China
Landmark Tower II
Unit 0830
8, North Dongsanhuan Road
District, Beijing
CHINA

www.ecomchina.com.cn

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