

**INTELLIGENT MESSEN!**  
*MEASURE WITH INTELLIGENCE!*

## Biogas Applications



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**ecom GMBH**

# 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<sub>2</sub>) 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.



## 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 process is 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 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.



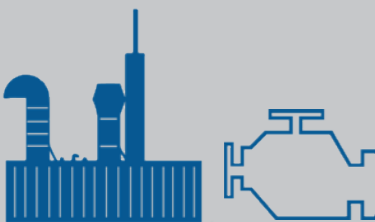
### BIOGAS-MEASUREMENT

At least six gas components (including O<sub>2</sub>, CH<sub>4</sub>, CO<sub>2</sub>, H<sub>2</sub>S, H<sub>2</sub>) can be measured simultaneously with ecom emissions analyzers. The same analyzer makes it possible to conduct pressure measurements as well as the simultaneous sensor equipment for measurements in CHP (including NO<sub>x</sub> measurements).



### LANDFILL GAS-MEASUREMENT

In addition to various options for measuring hydrocarbons (HC), ecom analyzers also provide different options for temperature measurements, as well as flow measurements.



### EMISSION ANALYSIS IN CHP'S

Especially for accurate and loss-free NO<sub>x</sub> measurement, ecom exhaust gas analyzers are perfectly adjusted (with gas cooler, PTFE hose, highest pump performance and 100% sensor calibration).

# Overview of technical data

√ Standard • Option

Device Name				ecom-D Handheld Analyzer	ecom-EN3-F Kompakt Analyzer	ecom-J2KNpro Kompakt Analyzer
Gas Components		Resolution	Accuracy	max. 6	max. 6	max. 6
O <sub>2</sub>	O <sub>2</sub> (0-21 vol%) - electrochemical	0,1 vol. %	± 0,3 vol. %	√	√	√
CO	CO (H <sub>2</sub> -kompensiert 0-10.000 ppm - electrochemical	1 ppm	± 20 ppm or 5 % of the reading**	√	√	√
	CO (H <sub>2</sub> - cross sensitive 0-20.000 ppm) - electrochemical	1 ppm	± 40 ppm or 10 % of the reading**	•	•	•
	CO% (0-63.000 ppm) - electrochemical	5 ppm	± 100 ppm or 10 % of the reading**	•	•	•
NO <sub>x</sub>	NO (0-5.000 ppm) - electrochemical	1 ppm	± 5 ppm or 5 % of the reading*	√	√	√
	NO <sub>low</sub> (0-500 ppm) - electrochemical	0,1 ppm	± 2 ppm or 5 % of the reading**	•	•	•
	NO <sub>2</sub> (0-1.000 ppm) - electrochemical	1 ppm	± 5 ppm or 5 % of the reading**	√	√	√
	NO <sub>2,low</sub> (0-100 ppm) - electrochemical	0,1 ppm	± 5 ppm or 5 % of the reading**	•	•	•
	NO <sub>x</sub> measurement (a variety of options with different levels of resolution/accuracy)			electrochemically via NO/NO <sub>2</sub>	electrochemically via NO/NO <sub>2</sub>	electrochemically via NO/NO <sub>2</sub>
H <sub>2</sub> S	H <sub>2</sub> S (0-5.000 ppm) - electrochemical	1 ppm	± 50 ppm or 5 % of the reading**	√	√	√
C <sub>x</sub> H <sub>y</sub>	CH <sub>4</sub> (0 bis 100 %) - NDIR sensor	0,1 vol. %	± 5 % of the upper range value	√	√	√
<b>Parameters</b>						
CO <sub>2</sub> - 0 - CO <sub>2</sub> max				√	√	√
Combustion efficiency (ETA) - 0 - 120%				√	√	√
Excess air (Lambda) - > 1				√	√	√
Exhaust gas loss qA - 0 - 1.00%				√	√	√
Dew point - x °C				√	√	√
mg/m <sup>3</sup> - x mg/m <sup>3</sup>				√	√	√
mg/KWh - x mg/kWh				√	√	√
O <sub>2</sub> -reference - x % O <sub>2</sub>				√	√	√
<b>Additional Measurements/ Display Options</b>						
T-air - 0 - 99°C				√	√	√
Differential pressure [ΔP] - ± 100 hPa				√	√	√
Temperature development indicator for main flow search - °C				√	√	√
Display pump capacity (l/min)				x	√	√
<b>Exhaust Gas Temperature</b>						
0...500 °C				√	√	√
0...1.000 °C				•	•	•
> 1.000 °C				•	•	•
<b>Gas processing</b>						
Sample gas cooler - electronically monitored				√	√	√
Automatic condensate draining				x	√	√
<b>Sampling System</b>						
Unheated probe, type SU				√	√	√
<b>Gas transportation (tubing)</b>						
NO <sub>x</sub> / SO <sub>2</sub> - Special tubing with PTFE inner coating				√	√	√
Viton sampling tubing				√	√	√
<b>Data processing</b>						
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 from ecom-AK				√	√	√

\* NDIR = nondispersive infrared technology  
\*\* the greater value is valid for each



FLUE GAS ANALYSIS

ecom® D



FLUE GAS ANALYSIS

ecom® EN3-F



ecom-D ENGINE

HANDHELD FLUE GAS ANALYZER FOR INDUSTRIAL APPLICATIONS

- NO<sub>x</sub> version (with O<sub>2</sub> / CO / NO / NO<sub>2</sub> sensors)
- Up to 6 gas sensors possible
- Preset for NO<sub>x</sub> measurement and in mg/m<sup>3</sup> at 5% O<sub>2</sub> reference (freely adjustable)
- CO sensor overload protection without measurement interruption
- Electronically monitored sample gas cooler
- With sampling probe (360 mm) with mini heat shield, cone and 2-chamber NO<sub>x</sub> sampling tubing (3.5 m)
- Powerful Lithium-Ion battery
- Back-lit display and keypad
- Thermal quick printer
- Fitted in hardtop transport case
- Aluminum housing (ultralight)
- Wireless data interface (e.g. for connection to a smartphone or tablet)
- Calibration certificate



BIOGAS PACKAGE

- CH<sub>4</sub> (NDIR) sensor, 0 - 100 %
- H<sub>2</sub>S (EC) sensor, 0 - 5.000 ppm
- Viton sampling tubing, 3 m

The optional package is also available as an upgrade for existing ecom ENGINE analyzers, under reserve of technical feasibility.



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)

Measureable Gases

O <sub>2</sub>	CO	NO	NO <sub>2</sub>
H <sub>2</sub> S	C <sub>x</sub> H <sub>y</sub>		

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

ecom-EN3-F ENGINE

EMISSIONS ANALYSIS IN FIT TO FLY TRANSPORT CASE

- NO<sub>x</sub> version (with O<sub>2</sub> / CO / NO / NO<sub>2</sub> sensors)
- Up to 6 gas sensors possible
- Preset for NO<sub>x</sub> measurement and in mg/m<sup>3</sup> at 5% O<sub>2</sub> consumption (freely adjustable)
- CO sensor overload protection without measurement interruption
- Electronically monitored sample gas cooler
- Brushless high-performance gas pump
- With sampling probe (350 mm), NO<sub>x</sub> / SO<sub>2</sub> tubing and mini-heat protection shield on the probe cone
- Thermal quick printer
- Fitted in hardtop transport case
- Aluminum housing (ultralight)
- TFT color display and backlit keypad
- Powerful Lithium-Ion battery
- Power supply + power supply bag
- LED flow-display
- Wireless data interface (e.g. for connection to a smartphone or tablet)
- Calibration certificate



BIOGAS PACKAGE

- CH<sub>4</sub> (NDIR) sensor, 0 - 100 %
- H<sub>2</sub>S (EC) sensor, 0 - 5.000 ppm
- Viton sampling tubing, 3 m

The optional package is also available as an upgrade for existing ecom ENGINE analyzers, under reserve of technical feasibility.



Dimensions (B x H x T) 550 x 185 x 380 mm  
Weight approx 9 kg (includes probe and sample line)

Measureable Gases

O <sub>2</sub>	CO	NO	NO <sub>2</sub>
H <sub>2</sub> S	C <sub>x</sub> H <sub>y</sub>		

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



ACCURATE



ROBUST



EFFICIENT



SAFE



FAR-REACHING



COMPLETE



COOL



LOSS-FREE

FLUE GAS ANALYSIS

ecom® J2KN<sup>pro</sup>



**ecom-J2KNpro ENGINE**  
POWERFUL FLUE GAS ANALYZER  
WITH RADIO REMOTE CONTROL

- NO<sub>x</sub> version ( equipment with O<sub>2</sub> / CO / NO / NO<sub>2</sub> / SO<sub>2</sub> sensors)
- Up to 6 sensors possible
- Preset for NO<sub>x</sub> measurements, with mg/m<sup>3</sup> at 5% O<sub>2</sub> reference (freely adjustable)
- 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
- Sample gas cooler including electronic condensate monitoring and automatic condensate drain
- With unheated probe, cone and NO<sub>x</sub> 2-chamber sampling tubing (3.5 m) including miniature heat shield on the probe cone
- Integrated thermal fast printer
- Instrument internal heating
- Status display
- Calibration certificate
- Wireless data interface (e.g. for connection to a smartphone or tablet)

**BIOGAS PACKAGE**

- CH<sub>4</sub> (NDIR) sensor, 0 - 100 %
- H<sub>2</sub>S (EC) sensor, 0 - 5.000 ppm
- Viton sampling tubing, 3 m

The optional package is also available as an upgrade for existing ecom ENGINE analyzers, under reserve of technical feasibility.



**Dimensions (W x H x D)** 550 x 185 x 380 mm  
**Weight** approx 12 kg – complete with sampling system

**Measureable Gases**



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



**PRESSURE MEASUREMENT AND LEAK DETECTION**

**ecom-DP ENGINE**

**FOR MEASUREMENTS AND ADJUSTMENTS ON ENGINES**

- Basic version with one sensor (0-10 bar) with a resolution of 0.001 bar and an accuracy of 0.5% of full scale value
- Optional extension with a second sensor (0-1 bar) with a resolution of 0.0001 bar and an accuracy of 0.3% of the end value of the measuring range
- Gas pressure control (± 80 hPa to 8 bar)
- Differential pressure measurement at charge air cooler (± 20 to 700 hPa)
- Measurement of flue gas overpressure (± 5 to 120 hPa)
- Differential pressure measurement at blow by filter (5 to 50 hPa)
- Crankcase pressure measurement (-5 to 10 hPa)
- Differential pressure measurement on gas heating/gas burners (connection pressure, nozzle pressure, system pressure and resting pressure) is also possible
- Free PC software „DP-Logger“



**ACCESSORIES**

- Tubing set - for an operating pressure of up to 1 bar
- Tubing set - for an operating pressure of up to 10 bar
- Infrared printer

**Dimensions (W x H x D)** approx 170 x 75 x 35 mm  
**Weight** approx 0,3 kg (batteries incl.)

Range	Resolution	Accuracy
0-10 bar	0,001 bar	0,5% of the upper range value
0-1 bar	0,1 hPa	0,3% of the upper range value

**ecom-LSG CO**

**LEAK DETECTION FOR CARBON MONOXIDE**

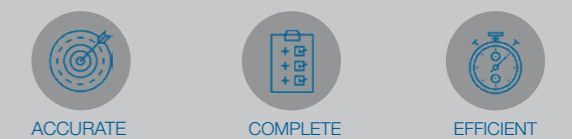
- 3 freely adjustable sensitivity levels
- Fast response time < 2 sec.
- Flexible, long, high-quality and flexible swan-neck
- Display: approx. 20 x 7 mm, backlit
- Acoustic signal: switch on/off or via headphone jack
- Power supply: 2 x AAA batteries (included)



**ACCESSORIES**

- Battery charging station (incl. batteries and charger)
- Carrying case
- Earphones

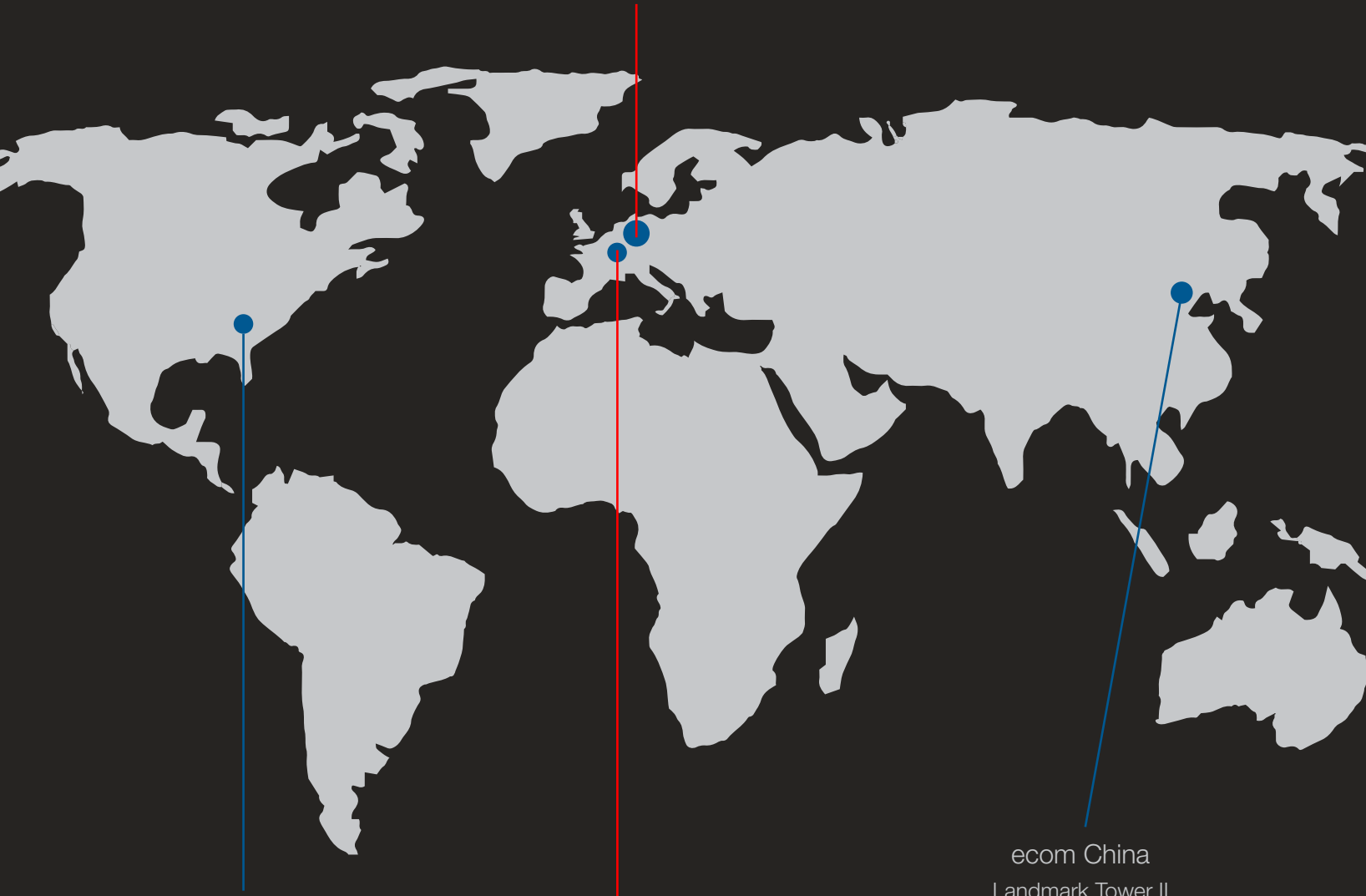
**Dimensions (W x H x D):** Housing app. 155 x 35 x 22 mm  
**Swan-neck:** approx 355 mm long  
**Weight:** approx 200 g



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