

FLUE GAS ANALYSIS

CRAFTS - FACILITY – BURNER & BOILER INDUSTRY – ADJUSTMENT MEASUREMENTS



ecom®

ECOM-EN3-F

- COMPACT ANALYSER IN FLIGHT-CAPABLE HARDTOP TRANSPORT CASE
- BASIC VERSION WITH O₂ AND CO LONGLIFE SENSORS – FURTHER UPGRADE POSSIBLE
- CO-SENSOR OVERLOAD PROTECTION WITHOUT MEASUREMENT INTERRUPTION
- HIGH-PERFORMING GAS PUMP WITH LOW MAINTENANCE
- HEATED GAS SAMPLING PROBE LENGTH 350 MM, Ø 10 MM
- 3-CHAMBER HOSE, LENGTH 3 M
- INTEGRAL THERMAL QUICK-PRINTER 58 MM
- HIGH-VALUE T-GAS PLUG
- BLUETOOTH LOW ENERGY –BLE-
- MINI GAS COOLER
- BACKLIT TFT COLOUR DISPLAY & KEYPAD
- DIGITAL STATUS INDICATION (BATTERY CHARGING STAND, INSTRUMENT STAND, DATA TRANSFER QUALITY)
- LI-ION BATTERY
- ROBUST HARDTOP FLIGHTCASE





TECHNICAL DATA & FEATURES BASIC MODEL				✓ = Standard ● = Option
MEASUREMENT	RANGE	RESOLUTION	ACCURACY	
Maximal amount of gas sensors			*= Higher value prevails	6
O ₂	0...21 %	0,01 vol.%	± 0.3 vol. %	✓
CO ppm (H ₂ -comp.)	0...4000 ppm	1 ppm	± 20 ppm / 5% measured value*	✓
CO ppm (H ₂ -comp.)	0...10.000 ppm	1 ppm	± 20 ppm / 5% measured value*	●
CO ppm (n. H ₂ -comp.)	0...20.000 ppm	1 ppm	± 40 ppm / 10% measured value*	●
CO %	0...63.000 ppm	5 ppm	± 100 ppm / 10% measured value*	●
CO ₂ IR sensor	0...20%	0,1 vol. %	± 0.5 vol. % / 5% measured value*	●
CO ₂ IR sensor	0...100%	0,1 vol. %	± 5 vol. % measure. range end value	●
NO	0...5000 ppm	1 ppm	± 5 ppm / 5% measured value*	●
NO ExtraLow	0...300 ppm	0,1 ppm	± 2 ppm / 5% measured value*	●
NO ₂	0...1000 ppm	1 ppm	± 5 ppm / 5% measured value* ⁽¹⁾	●
NO ₂ Low	0...100 ppm	0,1 ppm	± 5 ppm / 5% measured value* ⁽¹⁾	●
SO ₂	0...5000 ppm	1 ppm	± 5 ppm / 5% measured value* ⁽¹⁾	●
SO ₂ (Low CO)	0...5000 ppm	1 ppm	± 5 ppm / 5% measured value* ⁽¹⁾	●
SO ₂ Low	0...100 ppm	0,1 ppm	± 5 ppm / 5% measured value* ⁽¹⁾	●
H ₂	0...20.000 ppm	1 ppm	± 100 ppm or 5 % of measured value*	●
H ₂ S ppm	0...1000 ppm	1 ppm	± 10 ppm / 5% measured value*	●
CH ₄ IR sensor	0...5%	0,01 vol. %	± 0.2 vol. % / 5 % measured value*	●
CH ₄ IR sensor	0...100%	0,1 vol. %	± 5 vol. % measure. range end value	●
C _x H _x (catalytic)	0...4 %	0,01 vol.%		●
T-Gas	0...500°C	1°C	± 2°C (0-125°C) ± 3°C (125-250°C) ± 4°C (250-500°C)	✓
T-Air	0...99°C	1°C	± 1°C	✓
Pressure / ΔP	± 100 hPa	0,01 hPa	± 2%	✓
Soot (integral)	0...9			●
CALCULATION		RANGE		
CO ₂		0...CO ₂ max		✓
Combustion efficiency (ETA)		0...120%		✓
Excess air (Lambda)		>1		✓
Losses		0...100%		✓
CO _(U) undiluted		x ppm		✓
Dew point		x°C		✓
mg/m ³		x mg/m ³		✓
mg/kWh		x mg/kWh		✓
O ₂ reference		x %O ₂		✓
NOx via NO measured (estimated NOx value) ⁽²⁾		= 1.05 NO		●
GAS SAMPLING GAS TEMPERATURE MEASUREMENT				
Sampling probe (SB), heated 350 mm (1.1 ft.), Ø 10 mm, with thermocouple				1 ✓
3-chamber sampling tubing 3 m (10 ft)				2 ✓
Fixation cone with Teflon protection ring and stainless-steel tip				3 ✓
NOx sampling tubing with Teflon sleeve				●
High-value T-Gas plug				✓
COMBUSTION AIR SENSOR				
T-Room sensor (PT 2000)				✓
DATA INDICATION / INPUT				
TFT colour display 78 x 58 cm, 320 x 240 Dots, backlitged, graphic-/zoom-capable				4 ✓
Keypad with alphanumerical input function				5 ✓
DATA PRINTOUT				
Integral thermal quick-printer, paper width 58 mm (2.2 in.)				6 ✓
Address on protocol changeable by user (via keypad)				✓
DATA PROCESSING				
Slot for MM card; data logger function				✓
Bluetooth Low Energy (BLE) interface				✓
Wi-Fi interface (instead of BLE)				●
Data exchange with gratis ecom® PC software MiniDV, DAS.NT.2, DAS 5.01				✓
Disturbance diagnosis with ecom-AK via connection cable				●
CONNECTIONS				
Charging connection at instrument				✓
Multi-function interface				✓
USB interface for data transfer				✓

GAS SENSORS | OPTIONS

NO MEASUREMENT, 0-5000 PPM (Item no. 107303)	
NO MEASUREMENT, EXTRALOW 0-300 PPM (Item no. 108506)	
NO ₂ MEASUREMENT, 0-1000 PPM ⁽¹⁾ (Item no. 107305)	
NO ₂ MEASUREMENT, LOW 0-100 PPM ⁽¹⁾ (Item no. 107321)	
SO ₂ MEASUREMENT, 0-5000 PPM ⁽¹⁾ (Item no. 107330)	
SO ₂ MEASUREMENT, 0-5000 PPM (LOW CO) ⁽¹⁾ (Item no. 108549)	
SO ₂ MEASUREMENT, LOW 0-100 PPM ⁽¹⁾ (Item no. 107053)	
CO PPM ENHANCED RANGE, 0-10.000 PPM (Item no. 50102221)	
CO% MEASUREMENT, 0-63.000 PPM ⁽²⁾ (Item no. 107310)	
CO 0-20.000 PPM (NON H ₂ COMP.), instead of H ₂ -comp. (Item no. 107311)	
CO ₂ MEASUREMENT 0-20%, IR SENSOR (Item no. 107340)	
CO ₂ MEASUREMENT 0-100%, IR SENSOR (Item no. 107345)	
H ₂ MEASUREMENT 0-20.000 PPM (Item no. 107339)	
H ₂ S MEASUREMENT 0-1000 PPM (Item no. 107331)	
CH ₄ MEASUREMENT 0-5%, IR SENSOR (Item no. 1057341)	
CH ₄ MEASUREMENT 0-100%, IR SENSOR (Item no. 107342)	
C _x H _y 0-4% VOL, CATALYTIC (Item no. 102994)	
⁽¹⁾ NOx sampling tubing recommended ⁽²⁾ Additional filtering recommended	
DIFFERENTIAL PRESSURE ACCESSORY	
TUBING , for ΔP measurement (± 0-100 hPa), Length approx. 1.5 m (4.9 in.)	
Item no. 105484	
DATA RECORDING ACCESSORY	
MM CARD 2 GB	
Item no. 102469	

⁽¹⁾ Guaranteed by use of NOx sampling tubing. | ⁽²⁾ When only NO; by NO+NO₂ = NOx measurement.

FLUE GAS ANALYSIS

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MEASUREMENT GAS PREPARATION	
Extra-quick gas transport (quick availability of measurement data)	✓
High-performing gas pump with low maintenance	✓
Mini electric gas cooler	7 ✓
Automatic condensation evacuation	✓
POWER SUPPLY	
Mains / battery operation	✓
Mains power cord length approx. 2.3 m (7.5 ft.)	✓
Lithium-Ion battery 7,2 V / 11,6 Ah with long-operation time	✓
OPERATION SAFETY	
Temperature trend indication for stream core search	✓
Automatic self-test during calibration phase	✓
Automatic CO switch-off (= sensor protection & prolongation of life span)	✓
Fresh air purge w/o. measurement interruption (= other values measured w/o. time loss)	✓
Fresh air purge after operation	✓
Pressure-compensated gas channel plate (optimized gas flow w/o. pressure fluctuation)	✓
Integral flow measurement for control of pump performance	8 ✓
Electronic condensation monitoring	✓
Longlife sensors	✓
Toxic pollutants filter for CO sensor (NOx/SO ₂ filtering cartridge)	•
Digital status indication (battery charging stand, instrument, data transfer quality)	✓
TRANSPORT	
Robust hardtop transport case made out of stable plastic	9 ✓
DIMENSIONS WEIGHT OTHERS	
Dimensions (W x H x D): approx. 515 x 325 x 175 mm (20.2 x 12.7 x 6.8 in.)	
Weight: approx. 8.5 kg (18.7 pd.)	
Calibration certificate, issued after instrument calibration into calibration chamber	✓
Tested and approved acc. to 1. BImSchV (O ₂ /CO/Temp./Pressure) and EN 50379-2	✓
Aluminium housing with 10 years guarantee	✓
Admissible ambient temperature: +5... +40°C	
Admissible storage temperature: -20... +50°C	
Fuel types: 5 pre-programmed, up to 16 possible	
Recommended interval for check/maintenance: 1 year	
Item no. basic model 7107013	

DATA TRANSFER | ACCESSORIES & OPTIONS

DATA CABLE USB, ANALYSER -> PC

- For data transfer to PC
- Length approx. 2 m



Item no. 55818

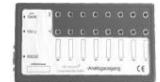
WI-FI OPTION, instead of Bluetooth Low Energy

Item no. 107203

8-CHANNEL ANALOG OUTPUT BOX (V / mA)

Connection box for external logging/recording units

- Dim.: approx. 165 x 85 x 30 mm (L x W x H)
- Weight: approx. 0.3 kg
- Incl. charger, cable to analyser, RS 232 cable, software



Item no. 101769

T-ROOM MEASUREMENT | ALTERNATIVE

T-ROOM STICK PT 2000

- Dim.: approx. 28 x Ø 11 mm (1.1 x Ø 0.04 in.)
- Weight: approx. 5 g (0.17 oz.)



Item no. 102888

CONSUMABLES | FOR STOCK

Fine dust filter (pack of 10 pcs)	Item no. 100568
Thermal printer paper roll	Item no. 56181
Soot filter paper (pack of 200 pcs)	Item no. 50515
Soot filter	Item no. 50508





AT MEASUREMENT | ACCESSORIES

CONTACT SENSOR T-ROOM (PT2000)

- Range: -20 to 100°C
- Resolution: 0,1°C
- Measurement uncertainty: ± 1°C
- Suitable for pipe Ø up to 100 mm (3.9 in.)
- Cable length: 3 m (10 ft.)



Item no. 12019

CONTACT SENSOR T-ROOM (PT2000)

- Range: -20 to 100°C
- Resolution: 0,1°C
- Measurement uncertainty: ± 1°C
- Suitable for pipe Ø up to 100 mm (3.9 in.)
- Cable length: 3 m (10 ft.)



Item no. 106982

FLOW VELOCITY / DYNAMIC PRESSURE

Internal hardware unit – enables the measurement (item doesn't cover any probe of random type)

- Range: 0-50 m / sec
- Accuracy: ± 0,2 m/s or ± 1% of measurement value
- Resolution: 0.1 m/s

Data valid by use of Prandtl / Pitot probe (not included in package – available from specialized trade).

(Item no. 107201)

DYNAMIC PRESSURE PROBE*

- Range: up to 3 m / sec
- Accuracy: ± 2.5% of measuring range final value
- Length: approx. 250 mm (9.8 in.)
- Tubing/cable approx. 2.5 m (8.2 ft.) & fixation cone



Length = 250 mm (9.8 in.) **Item no. 104118**

Length = 1000 mm (39.3 in.) **Item no. 104560**

Length = 1500 mm (59 in.) **Item no. 105333**

* The offered item is **not** a Pitot tube.

SAMPLING SYSTEM | ALTERNATIVES

PROBE TIP SB/SU Ø 10 MM

LENGTH 450 MM (1.4 FT) **Item no. 101234** ⁽¹⁾ *

LENGTH 500 MM (1.6 FT) **Item no. 100914** ⁽¹⁾

FLEXIBLE PROBE TIP Ø 8 MM

For measurements at hardly accessible measurement openings

- With fixation cone, special version
- Flexible tubing
- With thermocouple
- Tip screwable on probe grip SB/SU style
- Length approx. 400 mm



Item no. 102353 ⁽¹⁾

3-CHAMBER TUBING

LENGTH 5,0 M (16 FT) **Item no. 106914**

NOX SAMPLING TUBING

LENGTH 3,5 M (11.5 FT) **Item no. 106931**

LENGTH 5,0 M (16 FT) **Item no. 106932**

POWER SUPPLY | ACCESSORY

CAR CHARGING CABLE

Item no. 30000460



EXTERNAL FILTERING CARTRIDGE

TOXIC POLLUTANTS FILTERING FOR CO SENSOR

NOx-/SO₂ filter, large size

Item no. 107204





SIMPLE & MODERN DATA MONITORING & TRANSFER WITH THE APP ecomMANDER

MEASURE | DISPLAY | RECORD | TRANSFER

1. Download App from App Store / Playstore free of charge



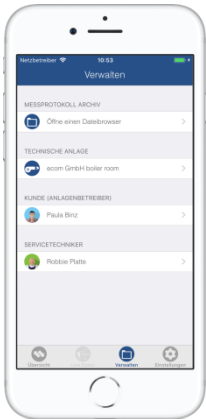
2. Activate pairing via wireless connection | Select instrument | Done!



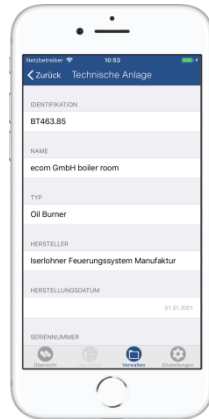
3. Live display of measurement values



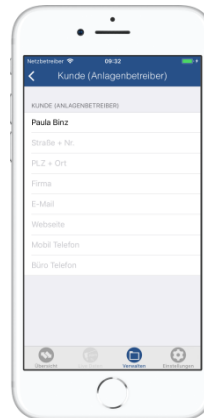
3. Spot and punctual measurements



3. Intuitive menu



3. Data of combustion plant



3. Customer data



3. Data related to service engineer



4. Creation of measurement protocols in practical PDF format

ecomMANDER

- SIMPLE CONNECTION**
 - Automatic identification of ecom instrument via wireless pairing
 - Recording of last active connection
 - Use not limited to a specific instrument
- SIMPLE HANDLING**
 - Remote monitoring of measurement
 - Start / stop of CO sensor purge
 - Printout of measurement results
 - Switch to stand-by mode
- SMART DATA PROCESSING**
 - Display of all measurement parameters
 - Organisation of customer data
 - Recording and management of measurement values
 - Archiving and / or export of measurement values via PDF



THE BELOW ICONS ILLUSTRATED IN ALL OUR PRODUCT INFORMATION SHEETS DO HAVE THE FOLLOWING MEANING:



EXTREMELY PRECISE - FOR EXACT MEASUREMENT ACCURACY.

After completion of the production process, the instrument is then professionally calibrated into a calibration chamber in order to eliminate possible cross-sensitivities. In order to measure in practice with the highest possible exactitude.



EXTREMELY EFFICIENT - ENHANCED CONVEYANCE CAPABILITY.

The product is fitted with a particularly performing pump which -compared to other instruments- is conveying many times over within the same period of time.



EXTREMELY BROAD REACH - WIRELESS COMMUNICATION.

Product fitted with radio module or Bluetooth Low Energy for wireless, unerring data transfer.



EXTREMELY SAFE – FOR MORE OPERATION SAFETY & PRODUCT LONGEVITY.

The model is or can be equipped with operation safety technique which protects its sensible components and contribute herewith to an increased life span.



EXTREMELY STABLE - SHOCK-PROOF.

Increased protection for safe transport / unintentional fall.
All-round protection provided by robust transport case resp. protective housing.



EXTREMELY COOL - DRIED SAMPLED GAS AND INCREASED READING ACCURACY.

The model is or can be equipped with a gas cooler which cools down the sampled gas and herewith makes sure that especially water-soluble gas components do not dilute but get conveyed to the sensors.



EXTREMELY LOSS-FREE – FOR SWIFT GAS TRANSPORT WITHOUT WASHOUT EFFECTS.

Special tubing either part of the standard model delivery package or available optionally provide with a quick gas transport, free of wash-out effects. Water-soluble components do not get lost but reach the measuring sensors.



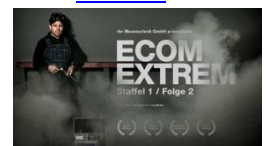
EXTREMELY COMPLETE - ALL INCLUSIVE – PRODUCT READY-TO-MEASURE.

The product is completely ready to measure and does not require any further components to be operated. Respectively a kit of essential consumables is covered in the delivery package, thus avoiding being forced to quit a measurement process because of a missing spare filter or else small part.

WATCH AT VIDEO CLIPS ON



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AND EXPERIENCE UNIQUE



MEASUREMENT TECHNOLOGY!



FOCUSED APPLICATION RESPECTIVELY USER PROFILE ECOM® FLUE GAS ANALYSERS



CRAFTS
Chimney-sweep
Heating installer



SERVICE ORGANISATIONS & FACILITY-MANAGEMENT
Maintenance & adjustment of home smaller boilers. Manufacturers of smaller boilers; Facility Management (building maintenance companies).
Service divisions with many technicians.



BURNER & BOILER MANUFACTURERS
Companies manufacturing resp. maintaining larger boiler and burner.
Service divisions with lots of technicians.



COGENERATION
Companies manufacturing resp. maintaining engines or combined heat and power plants. An exact NO_x measurement is of specific importance in this sector.



OIL & GAS
Raw material production
Transport
Processing



INDUSTRIAL APPLICATIONS
Mining
Foundries
Cement factories
Cookery plants
Chemical process heating
Waste combustion, etc.



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FLUE GAS ANALYSIS PRESSURE MEASUREMENT

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