INTELLIGENT MESSEN!
MEASURE WITH INTELLIGENCE!

ecom® D
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...

**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, 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.

**EXTREM COMPLETE.**

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.

**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.

**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 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 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.

**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.

**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 NOₓ 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.e. NOₓ and SO₂) by industrial applications (like e.g. aluminium process, coke oven plants, cement processing, power plants, refineries, waste incineration...).
### Overview of technical data

#### Flue gas analyser model

<table>
<thead>
<tr>
<th>Gas Components</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O₂</strong></td>
<td>0,01 vol.%</td>
<td>± 0,3 vol.%</td>
</tr>
<tr>
<td><strong>CO</strong></td>
<td>1 ppm</td>
<td>± 20 ppm or 5 % of reading**</td>
</tr>
<tr>
<td><strong>CO₂</strong></td>
<td>5 ppm</td>
<td>± 100 ppm or 10 % of reading**</td>
</tr>
<tr>
<td><strong>NO</strong></td>
<td>0,1 ppm</td>
<td>± 2 ppm or 5 % of reading**</td>
</tr>
<tr>
<td><strong>SO₂</strong></td>
<td>1 ppm</td>
<td>± 10 ppm or 5 % of reading**</td>
</tr>
<tr>
<td><strong>H₂</strong></td>
<td>1 ppm</td>
<td>± 10 ppm or 5 % of reading**</td>
</tr>
<tr>
<td><strong>H₂S</strong></td>
<td>0,1 ppm</td>
<td>± 2 ppm or 5 % of reading**</td>
</tr>
<tr>
<td><strong>C₅H₁₀</strong></td>
<td>1 ppm</td>
<td>± 0,2 vol.% or 5 % of reading**</td>
</tr>
</tbody>
</table>

#### Additional Measurements | Display Options

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Gas 0 - 500 °C</td>
<td>1 °C</td>
</tr>
<tr>
<td>T-Air 0 - 99 °C</td>
<td>1 °C</td>
</tr>
<tr>
<td>Pressure</td>
<td>± 100 hPa</td>
</tr>
</tbody>
</table>

#### Calculated values

- CO₂ - 0 - CO₂ 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
- O₂ - reference- x % O₂

#### 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
- NOx / SOx 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 multimedia 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

*Standard* | Optional
---|---
ecom-D EASY
HANDHELD FLUE GAS ANALYZER FOR INDUSTRIAL APPLICATIONS

- $O_2$ / CO (H₂-comp.) Longlife sensors
- Up to 6 sensors (Longlife sensors)
- Direct CO₂ 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 (SO₂, H₂S, H₂, CO%, NO, NO₂)
- NOx calculation via NO sensor NO measurement
- Higher resolution and accuracy in the NOₓlow (0-300 ppm) or NOₓLow (0-100 ppm) range
- NOx tubing in length 3.5 m or 5 m
- Replaceable probe attachments in different lengths

Measureable Gases

- $O_2$
- CO
- NO
- NOₓ
- $C_2H_4$
- $H_2$
- CO%
- H₂S
- SO₂
- CO₃

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)
ecom-D ENGINE
FOR MEASUREMENTS AT CHPS AND ENGINES

- NOx version (equipped with O2 / CO / NO / NOx 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 NOx tubing (3.5 m)
- Integrated thermal fast printer
- Fitted in hardtop transport case

ecom-D EXPERT
FOR PERFECT NOx /SO2 MEASUREMENTS E.G. AT INDUSTRIAL APPLICATIONS

- NOx version (equipped with O2 / CO / NO / NOx 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 NOx tubing (3.5 m)
- Integrated thermal fast printer
- Fitted in hardtop transport case

**Measureable Gases**

<table>
<thead>
<tr>
<th>Measureable Gases</th>
<th>O2</th>
<th>CO</th>
<th>NO</th>
<th>NOx</th>
<th>C2H4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H2</td>
<td>CO%</td>
<td>H2S</td>
<td>SO2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CO2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

= Base;  = Optional EC;  = Optional NDIR;  = Optional Pellistor
**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-LSG**

DETECTION OF FLAMMABLE GASES

- Three sensitivity levels adjustable
- Accoustic 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.

**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.