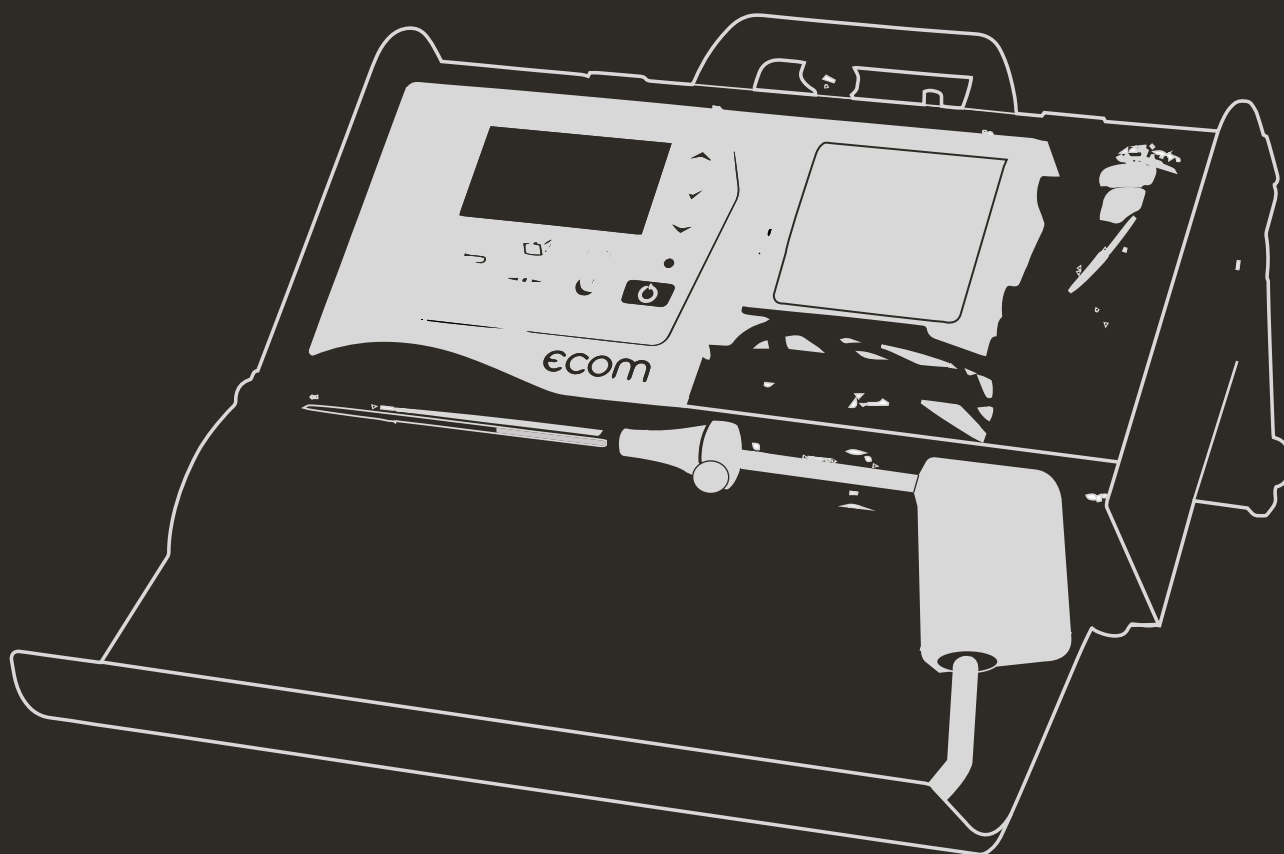


The smallest compact gas analyser  
fitted in an ergonomic carrying case  
- a lot of technology in a small space

ecom<sup>®</sup> CL2



# 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 ( $\text{CO}$ ,  $\text{NO}$ ,  $\text{SO}_2$ ) 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, 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  $\text{NO}_x$  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.  $\text{NO}_2$  and  $\text{SO}_2$ ) by industrial applications (like e.g. aluminium process, coke oven plants, cement processing, power plants, refineries, waste incineration...).

# Overview of technical data

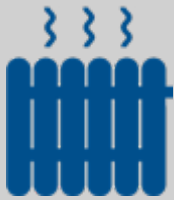
✓ Standard • Optional

| Flue gas analyser model                                                 |                                                              |            |                                   | CL2    |
|-------------------------------------------------------------------------|--------------------------------------------------------------|------------|-----------------------------------|--------|
| Gas Components                                                          |                                                              | Resolution | Accuracy                          | max. 3 |
| O <sub>2</sub>                                                          | O <sub>2</sub> (0 - 21 vol.%) - electrochemical              | 0,1 vol.%  | ± 0,3 vol.%                       | ✓      |
| CO                                                                      | CO (n. H <sub>2</sub> -komp. 0 -2.000 ppm) - electrochemical | 1 ppm      | ± 20 ppm or 5 % of reading*       | •      |
|                                                                         | CO (H <sub>2</sub> -komp. 0 -10.000 ppm) - electrochemical   | 1 ppm      | ± 20 ppm or 5 % of reading*       | ✓      |
| NO                                                                      | NO (0 - 5.000 ppm) - electrochemical                         | 1 ppm      | ± 5 ppm or 5% of reading*         | •      |
| Additional Measurements   Display Options                               |                                                              | Resolution | Accuracy                          |        |
| T-Gas                                                                   | 0 - 500 °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 <sub>2</sub> - 0 - CO <sub>2</sub> 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 <sub>2</sub> -reference- x % O <sub>2</sub>                           |                                                              |            |                                   | ✓      |
| Gas processing                                                          |                                                              |            |                                   |        |
| Electronic condensation monitoring                                      |                                                              |            |                                   | ✓      |
| 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 BB                                                 |                                                              |            |                                   | ✓      |
| Gas transportation (tubing)                                             |                                                              |            |                                   |        |
| Multi-chamber silicone tubing                                           |                                                              |            |                                   | ✓      |
| Printer                                                                 |                                                              |            |                                   |        |
| Thermal quick-printer, integral                                         |                                                              |            |                                   | ✓      |
| Data processing                                                         |                                                              |            |                                   |        |
| Serial interface for data transfer                                      |                                                              |            |                                   | ✓      |
| Wireless data interface (e.g. for connection to a smartphone or tablet) |                                                              |            |                                   | ✓      |
| Internal memory                                                         |                                                              |            |                                   | ✓      |
| Remote control                                                          |                                                              |            |                                   |        |
| via backlit keypad                                                      |                                                              |            |                                   | ✓      |
| via smartphone/tablet (free iOS + Android app)                          |                                                              |            |                                   | ✓      |

\* the higher value prevails

# ecom<sup>®</sup> CL2

## FLUE GAS ANALYSIS



### ecom-CL2

#### COMPACT FLUE GAS ANALYZER

- O<sub>2</sub>/ CO Longlife sensors
- Up to three sensors possible
- Automatic CO-shutoff and flushing (without interruption of measurement)
- Robust aluminum protective housing with stable carrying handle and shoulder carrying strap
- Operation as wall-mounted device: back magnets for mounting on all metal surfaces
- Operation as floor standing instrument: folding tilt stand
- Condensate trap with electronic condensation monitoring and fine dust filter
- Complete with sampling probe (220 mm length), with fixation cone and 3-chamber sampling tubing (2,2 m)
- T-Room sensor with cable, fixation cone and fixation magnet or alternatively T-Room stick (depending on the variant)
- Integrated thermal fast printer
- Integral LiFePo4 high performance battery with long lifecycle
- Charge of battery with closed protective housing
- Calibration certificate
- Wireless data interface (e.g. for connection to a smartphone or tablet)

#### ADDITIONAL OPTIONS

- NO sensor

#### Measurable Gases



● = Base; ● = Optional EC

**Dimensions** Closed lid (W x H x D) 340 x 230 x 95 mm  
Open lid (W x H x D) 340 x 350 x 180 mm

**Weight** app. 3 kg (complete)



ACCURATE



ROBUST



SAFE



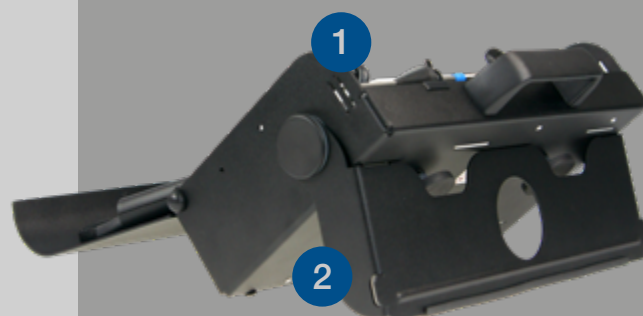
FAR-REACHING



COMPLETE



- 1 Slot for carrying strap
- 2 Folding tilt stand
- 3 Robust, ergonomic carrying handle
- 4 Fixation clips for optional probe extension
- 5 LCD-Display with backlight
- 6 Fixation clips for T-Room sensor
- 7 Thermal printer
- 8 Serial interface
- 9 Elektronik condensate trap
- 10 Sampling probe with fixation cone and 3-chamber sampling tubing
- 11 Three strong fixation magnets



# 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<br>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). |
| <br>* 2.3µA 231V | Indication of burner operating mode.                                                                                                                                  |
| * 2.2µA IS<br>* 1.2µA MIN                                                                          | Measurement of flame signal and comparison with minimal value.                                                                                                        |
| Rest time TSA<br>3.9 sec                                                                           | Check if flame occurs immediately or with delays.                                                                                                                     |
| Current error<br>Flame signal during<br>straightlight check !                                      | Indication of current disturbance source as well as of 5 past disturbances.                                                                                           |
| Start-ups counter<br>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<sub>2</sub>O, psi, mmHg
- Measurement range: ± 200 hPa, ± 2038 mmH<sub>2</sub>O, ± 2.9 psi, ± 150 mmHg
- Resolution: 0.01 hPa / 0.01 mmH<sub>2</sub>O / 0.01 psi / 0.01 mmHg
- Accuracy: approx. 1%
- Overload: 300 hPa / 3060 mmH<sub>2</sub>O / 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<sub>4</sub>, Response time: < 2 seconds
- Backlit bargraph
- Display approx. 20 x 7 mm
- 1-14 bars (10 bars = approx. 1000 ppm CH<sub>4</sub>)
- 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



### T-Room stick

PT 2000 resistance temperature sensor for measuring the room temperature directly on the device.



### 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.



### Filter plate

Multi-level gas preparation. Consisting of condensate trap, cartridge for filter floss, Silicate gel and activated carbon.



### CO multi-hole probe

For measurement of CO concentration according to KÜO.



### Ring slot multi-hole probe

For measurements on concentric exhaust systems, with three easily exchangeable sealing plugs (measuring aperture from Ø 5 to 25 mm).



### Contact sensor

For forerun and backrun temperature measurement with the exhaust gas measuring instrument.



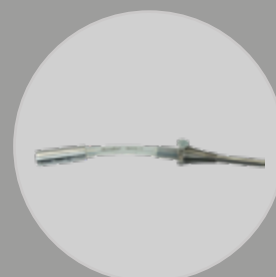
### T-Room probe (PT 2000)

For recording the room or intake temperature - e.g. for concentric exhaust systems.



### Soot pump set

Consisting of soot pump, soot comparison scale, piston lubricant oil, socket wrench and 200 soot test strips.



### 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.

**Other accessories on demand.**

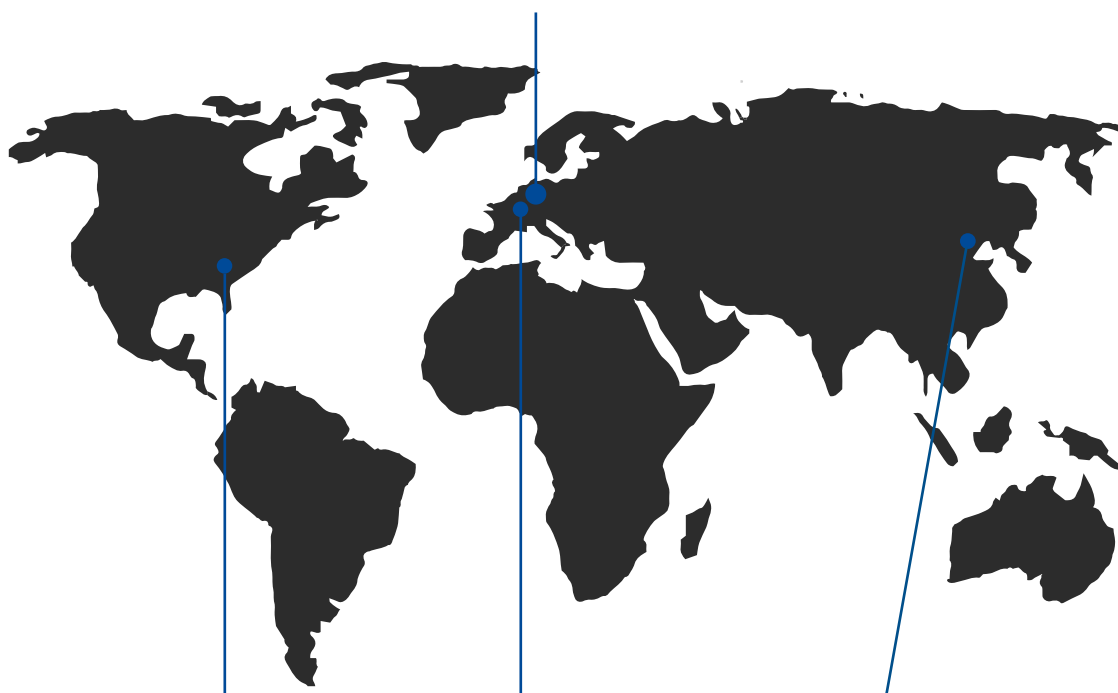
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improve the important

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