

ecom® • EN2 •

Robust and compact

rbr
Products

Flue Gas Analysis
in new
Dimensions



Robust, compact, light-weighted

Automatic overload protection
for CO sensor

Condensate trap with
safety shut-down

High reaction time

Thermal quick-printer

Heating Check and 4 Pa Test (optional)

Robust compact construction in new dimensions

The ecom-EN2 enables the analysis of the most important operation variables issued of combustion processes. It is designed in such a way that all wearing parts can be exchanged quickly. Sensors and accumulator can be easily replaced without dismounting the instrument. With its compact construction, space-saving size and easy operation it is just ideal for the quick check and adjustment of firing plants.



Robust measuring gas pump and high reaction time



Pre-filter for solid fuel types fired plants

The pump with generous dimensions provides with optimal operation safety and minimizes the maintenance costs. It withstands also tough operation conditions and secures on a long-term basis a sufficient and quick feeding of the sensors with measurement gas. The pump enables the unproblematic use of a pre-filtering system by solid fuel types analysis applications.

The high pump performance ascertains the high reaction speed of the ecom-EN2 so that the measurement results are quickly available, in fact up to 3 times faster than hand-held instruments.

A quick values availability is especially important by modern heating plants without sufficient heat reduction at the time the measurement is made.

A further important feature which emphasizes the high pump performance of the ecom-EN2 is the quick regeneration of the sensors after the measurement; an important contribution to careful sensor operation.



Flow meter

The volume conveyed by the pump is constantly measured. By difficult ambient conditions the user can check the sucking performance any time and, by decreasing performance, arrange for a timely instrument maintenance.



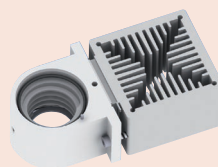
Measuring gas pump hand-held instrument



Measuring gas pump ecom-EN2

Condensate trap with safety shut-down

The condensate trap is equipped with a gas heat exchanger and an electronic condensate monitoring for a secure measurement gas process. Thanks to its spiral gas leading, the gas heat exchanger provides with an optimum dehumidification of the measuring gas. The condensate evacuation system is also reinforced by a metal sieve along the gas path that additionally acts as a pre-filter. Two contact pins provide with a level monitoring of the condensate trap. In case the maximal level is reached, the measuring gas pump switches off and prevents humidity to seep into the instrument. The simple emptying of the condensate trap is ensured via the evacuation tubing.



Gas heat exchanger

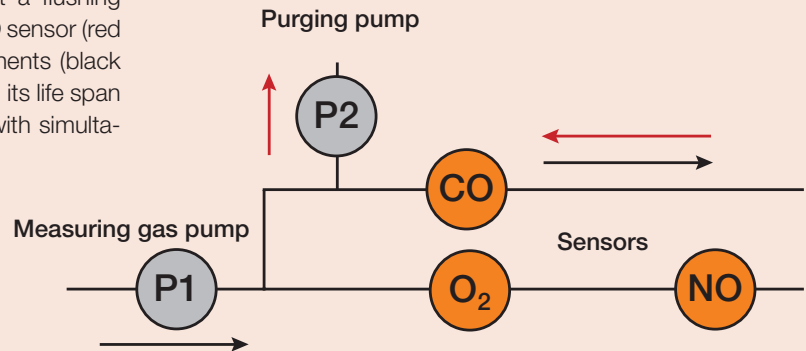


Contact pins

Metal sieve

Automatic overload protection for CO sensor

The CO sensor is safeguarded from overload by an internal protection programme. Above a pre-programmed limit a flushing pump is switched on (P2) to supply fresh air to the CO sensor (red arrows). The measurement of the other gas components (black arrows) can be resumed without problems. To extend its life span it is possible to switch off the CO sensor manually with simultaneous sensor purging.



Process of measurement results

The integral thermal quick printer with maximal speed of 75 mm/s issues an immediate documentation of the analysed values. The printout can be personalized with the operator address (8 x 24 characters). Optionally the ecom-EN2 can be equipped with a matrix printer.

The standard ecom-EN2 comes with a slot for multi-media cards (optional) on which 2000 data records per MB can be stored.

For data transfer and recording the ecom-EN2 offers a USB interface as standard fitting and can be optionally enhanced with an additional Bluetooth interface. Advantage: a PDA can be used for data recording.



Multi-Media-Card

USB interface



Thermal quick printer

Heating Check and 4 Pa Test

Heating check:

The heating check is a simple, expressive process to evaluate a complete heating plant (heat production, distribution and transfer) from the energetic point of view. Hereby the single plant components get inspected by the heating engineer in a combination of measurements and visual assessment and valued in regards of their energetic quality according to a negative point system of maximum 100 points. The higher the score, the farer the current plant stand is away from the desirable energetic stand and the higher the energy saving potential would be if modernisation measures are conducted. In combination with the necessary spe-

cial probes the ecom-EN2 is able to perform the measurement of gas, ventilation and surface heat losses required by the heating check.

4 Pa Test:

The simultaneous operation of room-dependent firing place and air evacuation system within a closed air compound can lead to dangerous low pressure conditions. With the ecom-EN2 it is possible to check the low pressure limit of 4 Pa and to print out the time-documented low pressure course in a diagram.



Probe for ventilation heat loss measurement

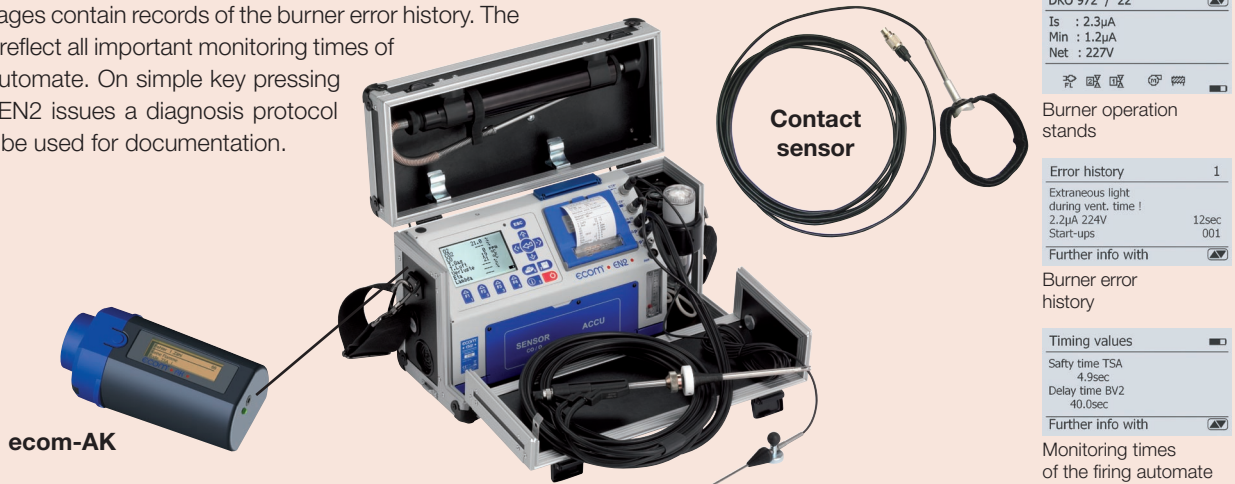


Probe for surface heat loss measurement

Trouble Diagnosis and Differential Temperature Measurement

Trouble diagnosis: A burner diagnosis is most easy using the ecom-EN2. Hereto the data sampled by the ecom-AK, read-out head for firing automats, are sent via cable to the ecom-EN2 and illustrated in a clear arrangement on the display. The first page shows a graphic illustration of the operation stands of the burner. The next pages contain records of the burner error history. The last pages reflect all important monitoring times of the firing automate. On simple key pressing the ecom-EN2 issues a diagnosis protocol which can be used for documentation.

Differential temperature measurement: The ecom-EN2 enables the determination of difference temperatures. Special contact sensors are available for the measurement at pipe systems (e.g. water ingoing and water outgoing at heat pumps and heating plants).



DKO 972 / 22	
Is	: 2.3µA
Min	: 1.2µA
Net	: 227V
Burner operation stands	
Error history	1
Extraneous light during vent. time !	
2.2µA 224V	12sec
Start-ups	001
Further info with	
Burner error history	
Timing values	
Safety time TSA	
4.9sec	
Delay time BV2	40.0sec
Further info with	
Monitoring times of the firing automate	

Features and Performance

Measuring variables

- O₂; CO; (NO, NO₂ as option); T-Gas; T-Airt; differential temperature; differential pressure

Calculation variables

- CO₂; CO(U); efficiency; losses; dew point; mg/m³; mg/kWh; ref. O₂

Display

- LCD-Display; 79 x 53 mm; 240 x 120 dots
- Back-lit, graphic-capable

Probe

- Coaxial probe 220 mm* with triple-chamber hose 2,60 m*

Preparation of measuring gas

- Quick gas transport (values promptly available)
- Condensation trap with fine dust filter and metal sieve
- Electronic condensate monitoring
- Automatic condensate evacuation (option)
- Electric gas cooler (option)

Safety

- Temperature trend indication to locate core flow
- CO shut-down without interruption of measurement
- Fresh air flushing by CO exceeding
- Fresh air purging after measuring operation

Printer

- Thermal quick printer 58 mm
- Matrix printer 58 mm (option)

Connections

- Charger connection at case outside
- Multifunctional interface
- USB interface for data transfer
- Bluetooth interface for data transfer (option)

Data processing

- Multi-media card (2000 values per MB)
- Data exchange with PC programme (via optional cable)

Transport

- Transport case
- Under-case for transport case (option)

Dimensions/Weight

- Dimensions (W x H x D): 400 x 260 x 175 mm
- Weight: approx. 6 kg complete with sampling system

* Other lengths on request.

Contact below rbr agency for more information