

ecom® • J2KN •

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Products

Robust and all-purpose analyser



Combination of measuring case  
and handy analyser

Removable control module  
with radio transmission

Robust measuring gas pump with  
optical flow control

Automatic condensate drainage

Flexible data memory using multi-media cards

Approved acc. to EN 50379-2 and 1<sup>st</sup> BImSchV

## Measuring case and handheld instrument unified

The ecom-J2KN enables the analysis of many variables by combustion processes. As universal instrument it qualifies for the gas analysis at all firing plants. Thanks to most modern radio technology the ecom-J2KN combines the advantages of robust measuring cases with those of hand-held instruments. Thanks to the removable control module, measurements at hardly accessible measuring points or larger firing plants become unproblematic. Hereby the basic module with the complete measurement technique is installed directly at the measuring point (flue gas pipe) while the mobile control module for burner adjustment or for plant components check is taken along. It monitors the basic module by radio (coverage approx. 50 m – ca. 20 times brighter coverage than Bluetooth connection).



ecom-J2KN with detached control module

## Flexible data memory using multi-media cards

The ecom-J2KN enables the memorisation of measurement data – regardless if punctual measurements or data logging series- on multi-media cards (2000 data records/MB). Values from punctual measurements get stored in a text file and data logging records in a csv file. Both data types have the same structure and can be easily imported in Excel.

Recording of several measurement points by modulating burners

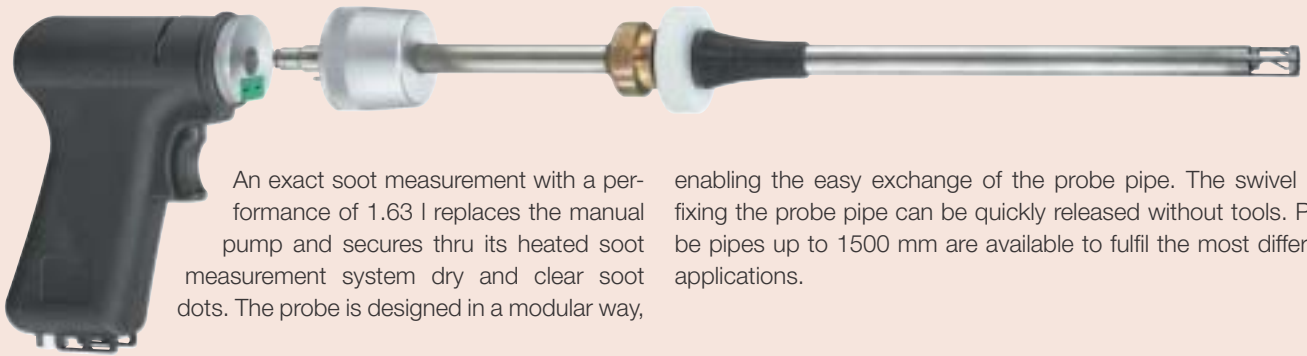
| Datum | Zeit              | Brennstoffart |
|-------|-------------------|---------------|
| 1     | 05.12.07 10:16:49 | Heizöl (B)    |
| 2     | 05.12.07 10:17:49 | Heizöl (B)    |
| 3     | 05.12.07 10:18:36 | Heizöl (B)    |
| 4     | 05.12.07 10:19:09 | Heizöl (B)    |
| 5     | 05.12.07 10:19:41 | Heizöl (B)    |
| 6     | 05.12.07 10:20:24 | Erdgas (B)    |
| 7     | 05.12.07 10:21:35 | Erdgas (B)    |
| 8     | 05.12.07 10:22:37 | Erdgas (B)    |
| 9     | 05.12.07 10:23:02 | Erdgas (B)    |
| 10    | 05.12.07 10:23:39 | Erdgas (B)    |

Auswählen : (←) 1 (→)



Insertion of multi-media card in control module slot

## Practical sampling probe and **electronic soot pump**



An exact soot measurement with a performance of 1.63 l replaces the manual pump and secures through its heated soot measurement system dry and clear soot dots. The probe is designed in a modular way,

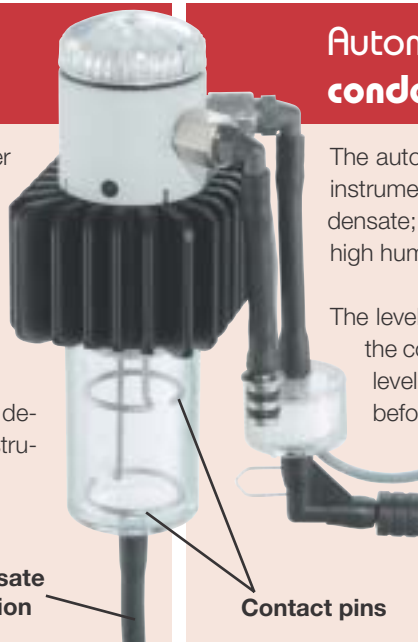
enabling the easy exchange of the probe pipe. The swivel nut fixing the probe pipe can be quickly released without tools. Probe pipes up to 1500 mm are available to fulfil the most different applications.

## Condensate trap with **safety shut-down**

The ecom-J2KN is fitted with a gas heat exchanger and an electronic condensate monitoring for a secure measuring gas process.

Thanks to its spiral gas leading the gas heat exchanger provides with an optimum dehumidification of the measuring gas.

The level monitor covers contact pins in a special design which prevents humidity to seep into the instrument, this regardless of the instrument position.



## Automatic **condensate evacuation**

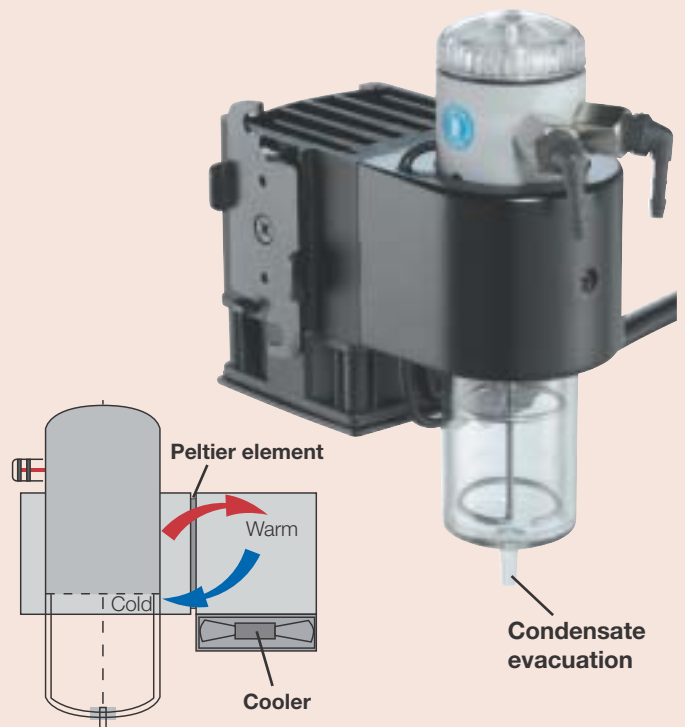
The automatic condensate evacuation protects the instrument against any penetration of harmful condensate; especially important by firing plants with high humidity formation, i.e. condensing systems.

The level monitor of the condensate bowl activates the condensate pump by reaching the maximum level. This way the condensate is evacuated before it could damage the humidity-sensitive sensors.

## Condensate trap with **Peltier cooler** (option)

Exhaust gas is flown in spiral via a long gas path through a surface coated metal body with good thermal conductivity. The gas radiates its heat to this metal body. A Peltier element (semiconductor cooling element) flown by a continuous current is thermally connected with this body and with a second metal body with cooling ribs and ventilation slots. The flow through the Peltier element creates a heat transfer from WARM to COLD, drains the heat of the metal body flown by gas and conveys it to the outer cooling body. This heat is conveyed through a vertical forced ventilation to the surrounding air. The condensation issued by the heat loss of the gas drops in a receptacle.

At the cooler outlet the gas has a temperature of ca. 5 °C with a relative saturation of nearly 100 % relative humidity (corresponds to a water vapour content < 7 g/m<sup>3</sup>). The nearly complete dehumidification of the measuring gas is especially important by long-lasting measurements at large firing plants.



## Robust measuring gas pump

The pump with generous dimensions provides with high 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.

Measuring gas pump ecom-J2KN



Measuring gas pump hand-held instrument



## Optical flow control

The volume flow sampled by the pump is constantly measured. By difficult ambient conditions the operator can continuously check the measuring gas suction.

By decreasing sucking performance an instrument maintenance can be organized in time.



## High reaction speed ascertained by high pump performance

The high pump performance ascertains the reaction speed of the ecom-J2KN so that the measurement results are quickly available. A comparison made with other analysers outlines the advantages of the ecom-J2KN regarding response speed (see diagram). The ecom-J2KN issues the measurement results up to 3 times faster than the hand-instruments compared in the tests. The quick values availability is especially important by modern heating plants without heat reduction at the time the measurement is made. In such cases the time available is hardly sufficient to perform a proper flue gas analysis.

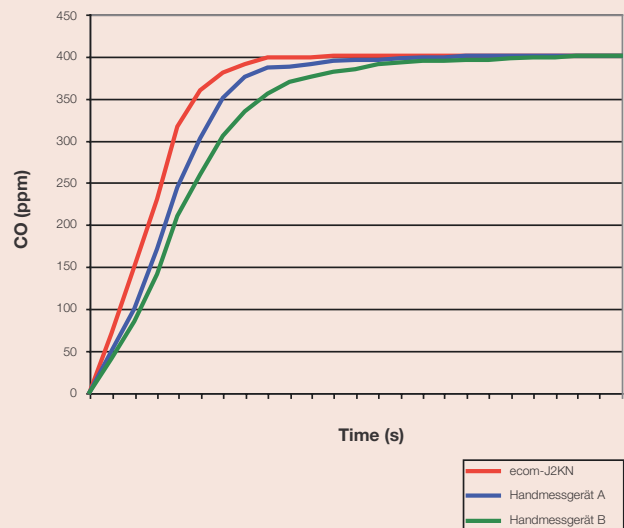
A further important point which emphasizes the high pump performance of the ecom-J2KN is the quick regeneration of the sensors after the measurement. The performing pump purges with high efficiency and contributes herewith decisively to the careful sensors operation.

## Insensitive power supply

The proven and robust lead battery provides with the necessary electric energy to operate the ecom-J2KN. It has no memory effect, is insensitive to deep discharge and is powerful also under tough daily use conditions. The ecom-J2KN can be operated any time by mains power.



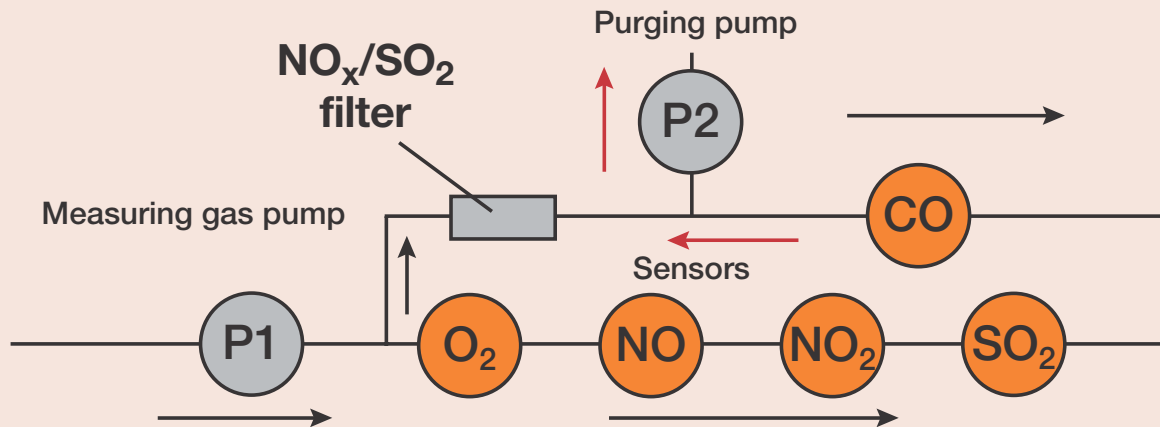
Reaction speed CO measurement



## Automatic overload protection for CO sensor

The CO sensor is safeguarded from overload by an internal 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 also during the few seconds until automatic re-connection. To extend its life span it is possible to switch off the CO sensor manually with simultaneous sensor purging.



## Service-friendly design



The ecom-J2KN is designed in such a way that all wearing parts can be quickly exchanged. Sensors and battery can be substituted without instrument disassembly. Important components are installed within the robust metal housing which can be dismantled quickly for repair or maintenance works.

**Easy opening of the battery compartment**

**Easily exchangeable sensors**



## Maintenance-free thermal quick printer

The integral thermal quick printer provides with an immediate documentation of the analysed values issued with a printing speed of maximal 75 mm/s. The printout can be personalized with the operator address (8 x 24 characters). Optionally the ecom-J2KN can be equipped with a matrix printer in order to secure a long-lasting printouts availability.

**Maintenance-free thermal quick printer**



Accessories for every application

External alphanumerical keyboard for input of notes regarding measuring points and operation stands.



Different probe pipes lengths available on request.

High temperature probe with protective bag for 750 mm probe.



Multi-media cards 2000 data records/MB.



T-Room stick for T-Room measurement at operator choice from control or basic module.



Data interface for radio transfer of online measurement data to PC. Illustration and recording of measuring values via gratis software DASNT 3.



NO<sub>x</sub> tubing for prevention of dilution losses by NO<sub>2</sub> and SO<sub>2</sub> measurement.



Magnetic fixation for control module positioning on magnetic surfaces. Leaves operator both hands free.



External radio antenna for securing of radio connection also under extreme conditions.



Peltier cooler for gas drying.



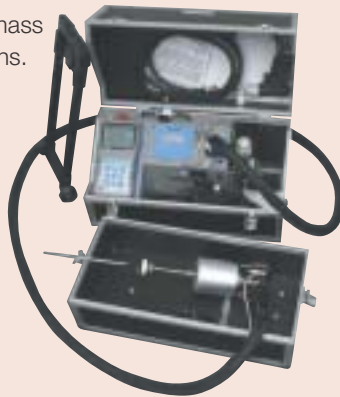
## XXX Transport case for additional storage

... and for suitable storage of NO<sub>x</sub> tubing with extended probe length.



## Industry version with heated sampling system

... incl. hot gas filter for biomass and power plants applications.



## Filtering systems for cleaning of measuring gas by solid fuel types analysis

Filtering plate for fixation at ecom-J2KN



Filtering case as separate system



## ecom-J2KN the multi-talent



J2KN at Weishaupt condensing boiler



J2KN at Viessmann oil boiler



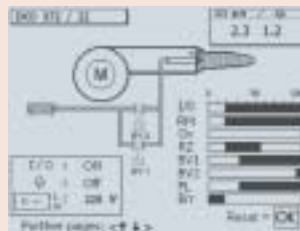
J2KN at Viessmann large boiler



J2KN at Jenbacher combined heating and power station

## Burner Diagnostic with ecom-J2KN und ecom-AK

A professional burner diagnostic is possible using the ecom-J2KN. Hereto the data sampled by the ecom-AK are sent via radio to the ecom-J2KN control module and illustrated in a clear arrangement on 3 display pages. The first page shows a graphic illustration of the **operation stands of the burner**. A progression indication enables to record the operation stands of the burner over a time period of 100 seconds. The next pages contain records of the **burner error history** with a listing of the most frequent errors. The last pages all important **monitoring times of the firing automate**. On corresponding key order the ecom-J2KN prints out a diagnostic protocol which can be used for documentation.



Operation stands of the burner with progression indication

| Error history                      |     |         |       |
|------------------------------------|-----|---------|-------|
| Number of startups total           | 677 |         |       |
| Service counter actual             | 142 |         |       |
| No error                           |     |         |       |
| In flame at the end of cycle time  | 204 | 1000 ms | 221 V |
| Flame signal during (cyclic) check | 001 | 17 ms   |       |
| Total                              | 46  |         |       |
| Straight                           | 22  |         |       |
| Softy time                         | 9   |         |       |
| Loss of flame                      | 97  |         |       |
| PT/LW                              | 0   |         |       |

Error history of the burner



| Timing values       |          |
|---------------------|----------|
| Softy time          | 4.9 sec  |
| Delay time valve 2  | 40 sec   |
| Preignition time    | 17 sec   |
| Postignition time   | 20 sec   |
| Delay straight up   | 11.5 sec |
| Straight suspension | 5 sec    |
| Rest time TSA       | 4.1 sec  |

Monitoring times of the firing automate

## Features and performance (tested and approved acc. to EN 50379-2 and 1<sup>st</sup> BImSchV)

### Measuring variables

- O<sub>2</sub>; CO; (CO%, NO, NO<sub>2</sub>, SO<sub>2</sub> as option); T-Gas; T-Air; differential pressure, soot

### Calculation variables

- CO<sub>2</sub>; CO(U); NO<sub>x</sub>; efficiency; losses; lambda; dew point; mg/m<sup>3</sup>, mg/kWh, O<sub>2</sub> reference; mean values calculation (option)

### Display

- LCD-Display; 78 x 58 mm; max. 8 lines
- Back-lit, graphic-capable

### Probe

- Pistol grip probe 290 mm\* with triple-chamber hose 3 m\*
- Electric heated probe for dry soot patterns
- High temperature probe 750 mm, range up to 1100°C (option)

### Preparation of measuring gas

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

### Safety

- Temperature end indication to locate core flow
- CO shut-down without interruption of measurement
- Fresh air flushing by CO exceeding; fresh air purging after measuring operation
- Contaminant filter for CO sensor

### Printer

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

### Connections

- Connection for external keyboard
- Serial interface for data transfer

### Data processing

- Internal memory (4000 measured values)
- Multi-media card as memory
- Measured values series on multi-media card
- Data exchange with PC programme (option)
- Foil keyboard for data input (option)
- Online DAS programme (option)

### Transport


- Transport case

### Dimensions/Weight

- Dimensions (W x H x D): 450 x 300 x 250 mm
- Weight: ca. 10 kg complete with sampling system

\* Others lengths available on request.

Consult below rbr agency for more information



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