



**ECOM-J2KNpro TECH**

- COMPACT AND MOBILE EMISSION MEASUREMENT ANALYSER WITH PHYSICAL MEASUREMENT METHODS FOR INDUSTRIAL APPLICATIONS (REFINERIES, INCINERATION PLANTS, COGENERATION, INDUSTRIAL PROCESSES, POWER PLANTS, ETC.)

**MEASUREMENT ACCURACY OUT OF 4 PRINCIPLES IN COMBINATION:**

- ELECTROCHEMISTRY (EC)  
O<sub>2</sub>, CO, CO%, NO, NO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>S
- CHEMILUMINESCENCE (CLD)  
NO, NO<sub>2</sub>, NO<sub>x</sub> (WITH CONVERTER)
- PHOTOACOUSTIC SPECTROSCOPY (PAS) NO<sub>2</sub>
- INFRARED (NDIR)  
CO, CO<sub>2</sub>, SO<sub>2</sub>, C<sub>x</sub>H<sub>y</sub>
- PHYSICAL MEASUREMENT METHODS COMBINABLE AT CHOICE WITH ELECTROCHEMICAL CELLS





The **ecom-J2KNpro TECH** is designed to fulfill high resp. industrial requirements in terms of gas analysis. Its focus is the **emission measurement** and the monitoring of **thermal processes** at plants with middle and high performance.

Unique is the combination capability of different measurement principles - mixed according to the application type and required accuracy. The utilisation of physical measurement methods enables to perform long-lasting measurements at industrial plants with constant quality. A selection of electrochemical sensors is available for those additional measurement parameters which can be determined with lower long-term stability and measurement accuracy.

The model can be fitted with **up to 6 electrochemical sensors** and the measurement array can be enlarged with two optional infrared benches to **10 different measurement parameters** at a total.

Due to the variety of applications and different requirements, the basic model does not cover a specific sampling system which can be selected by the user according to individual criteria and needs out of two different concepts.

The robust, hard-wearing transport case is optimally designed to withstand tough operation conditions; the mounted rolls enable effortless system motion - the top comfort alternative being the optional stable trolley. The optional top case offers storage space for the sampling system and/or required working tools.



Optional top case – for stowage of gas sampling system: heated sampling system or pistol grip probe with NO<sub>x</sub> tubing as well as else small working tools.



ecom-J2KNpro TECH with optional trolley



ecom-J2KNpro TECH and optional top case at trolley



## ecom<sup>®</sup> J2KN<sup>pro</sup> TECH



### MODULAR DESIGN

■ Aluminium-framed protection and transport case

■ ecom-J2KNpro

- Physical measurement unit, covering:
  - permanently active peristaltic pump,
  - 2<sup>nd</sup> gas cooler & cooling fan and –
  - depending on selected equipment:
    - CLD with ozone generator,
    - IR measuring bench,
    - converter or PAS measuring bench.

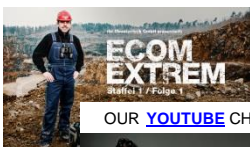


Side view

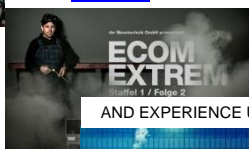
### FEATURES QUICK OVERVIEW

- 1 Detachable radio-driven wireless control module with Wi-Fi antenna
- 2 PTFE and NO<sub>x</sub> filter for IR/EC sensors
- 3 Thermal quick-printer
- 4 Foldable antenna for radio amplification
- 5 Connection heated sampling system
- 6 External gas cooler (stainless steel) and fan
- 7 Fine dust filter
- 8 Case rolls with lockable caster
- 9 Counter pieces for top case clips
- 10 Fan outlet
- 11 PTFE filter (2 μm)
- 12 Closing cap for converter cartridge (by corresponding equipment with converter)
- 13 Condensate outlet
- 14 Fresh air inlet
- 15 Sample gas outlet

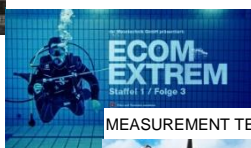
WATCH AT VIDEO CLIPS ON



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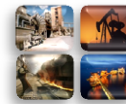


AND EXPERIENCE UNIQUE



MEASUREMENT TECHNOLOGY!





## SHORT INSIGHT INTO THE MODULAR MEASURING

### ELECTROCHEMICAL PRINCIPLE (EC)

The basic principle of an electrochemical sensor is to have two electrodes **at a minimum** (sensing and counter electrode) which are in contact with each other in two ways:

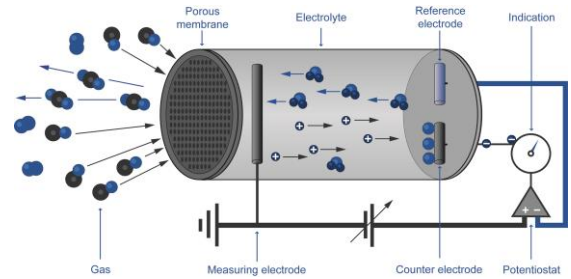
- on the one hand via an electrically conductive medium (electrolyte, i.e. liquid as an ion conductor),
- on the other hand via an external electric circuit (electron conductor).

The electrodes are made of a special material and have a catalytic effect so that certain **chemical reactions** take place at the so called 3-phase boundary where gas, catalyst and electrolyte are present.

Actually a two-electrode sensor (sensing and counter electrode), has many disadvantages. If there are higher gas concentrations, it leads to higher currents in the sensor and to a voltage drop which changes the preset voltage of the sensor. This can lead to unusable measurement signals or, in the worst case, the chemical reaction inside of the sensor stops during the measurement.

Therefore, a **third** electrode is added to the sensor which is used as a reference, situated away from the current flow.

The potential of the electrode is constant. With the reference electrode the sensor voltage is continuously measured at the measuring electrode and can be corrected by the control gain of the sensor. This leads to an enhanced measurement quality (e.g., in terms of linearity and selectivity) and a longer lifetime.



APPLICATION FIELD	PARTICULARITY	MAX. NUMBER IN PRO TECH
For quasi-continuous measurements. Automatic calibration at fresh air after 120 minutes.	Increased measurement accuracy provided by sensors alignment into calibration chamber.	<b>6</b>

### NON-DISPERSIVE INFRARED BENCH (NDIR)

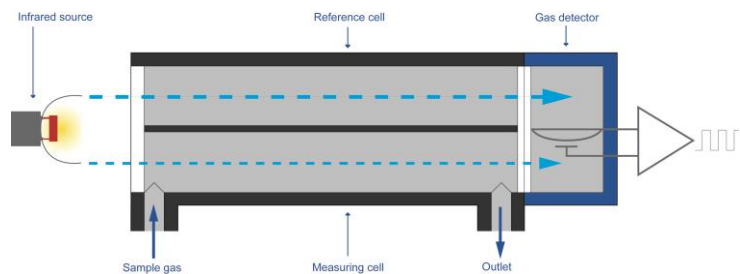
A non-dispersive infrared sensor is used in gas analysis to determine the gas concentration. NDIR analysers are particularly suitable for the determination of the concentration of carbon monoxide, carbon dioxide or hydrocarbons in a gas.

Components of this process are **a source** of infrared radiation, an irradiated tube (**cuvette**) with the gas to be analysed, a **wavelength filter** and an **infrared detector**. The gas which has to be analysed is pumped into the sample.

To ensure the sensor does not respond to all wavelengths, an upstream filter for the respective bandpass is connected for the suitable gas. The light from the infrared source irradiates the gas in the sample chamber and the filter and then meets on the IR sensor.

Ideally only the gas absorbs light of this wavelength and no other gas contained in the gas mixture.

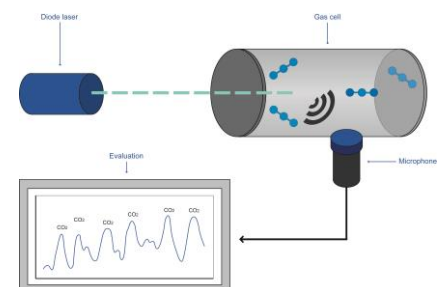
Absorption areas can also overlay and a cross-sensitivity arise. This must be either compensated, in order not to falsify the measurement results, or be avoided by a skillful selection of the frequency bands. With NDIR sensors over 100 different gases can be detected from ppm to percentage range. In many fields of application they apply as the default method because the measurement method is non-contact and free of consumption.



APPLICATION FIELD	PARTICULARITY	MAX. NUMBER IN PRO TECH
Continuous measurements also in mobile applications. Heated sampling system recommended.	Selective measurement. Lower cross-sensitivities than EC. Verschleißarm (also by Überlast).	<b>3</b> each NDIR bench type (STD / ADV.) = 6

### PHOTOACOUSTIC SPECTROSCOPY (PAS)

The photoacoustic spectroscopy (PAS) is a spectroscopic method which utilizes the photoacoustic effect. For example, gas, irradiated with modulated light of a predefined wavelength. A certain part of light energy is absorbed by the sample and is converted into acoustic waves. These signals can be detected by a microphone and then evaluated.



## PRINCIPLES OF THE ECOM-J2KNpro TECH ANALYSER

As a light source, infrared laser diodes are frequently used because the specific wavelength (color) of the investigated material is in the infra-red range in many applications. The light is modulated in an electronic or mechanical way, for example with a chopper.

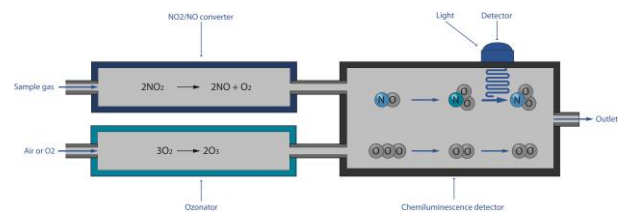
Gas molecules absorb a portion of light when the light frequency corresponds with an absorption band of the gas in the cell. The higher the concentration of the gas, the more light is absorbed. This produces heat, which leads to a change of pressure in the measuring cell. Normally, such a pressure difference balances out immediately. In case of light which is modulated by chopper it is different. The light is generating a pressure wave and therefore an acoustic signal while impinging on the molecules what can be detected with a microphone.

APPLICATION FIELD	PARTICULARITY	MAX. NUMBER IN PRO TECH
Continuous measurements also in mobile applications. Heated sampling system recommended.	Selective measurement. No cross-sensitivities. Low wear and tear (also by overload).	1

### CHEMOLUMINESCENCE (CLD)

A molecule can pass from the electronic initial condition to an electronic excited condition by absorption of energy.

During the transition the absorbed energy can be emitted again to an energetically lower-lying condition. On the one hand it can happen in form of heat (non-radiative deactivation) and, on the other hand, by the emission of light (luminescence).



Chemoluminescence means light which is emitted by excitation of a chemical reaction. It is being used in the analysis of **nitrogen gases**. Nitrogen monoxide reacts with ozone to excited nitrogen dioxide. The emitted light is amplified and measured by a photomultiplier.

In order to analyze nitrogen dioxide, it has to be reduced with a catalyst to nitrogen monoxide. Then it can be detected as described above. If all nitrogen oxides should be measured in a sample gas stream, the content of nitrogen monoxide has to be measured first. This measurement is carried out without a catalyst. Subsequently, the gas stream will be passed through the catalyst, what will reduce the nitrogen dioxide to NO and the sum of NO and NO<sub>2</sub> (NO<sub>x</sub>) will be determined.

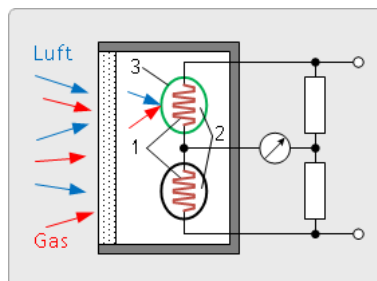
Nitrogen oxides increase especially during the burning process so that this method of analysis is applied in the combustion gas analysis of power plants, in the automotive industry as well as in environmental technologies.

APPLICATION FIELD	PARTICULARITY	MAX. NUMBER IN PRO TECH
Continuous measurements also in mobile applications. Heated sampling system recommended.	Selective measurement. No cross-sensitivities. Low wear and tear (also by overload). Low operation temperature: 205 °C Converter efficiency ≥ 95 %. Exchangeable cartridge with converter material. High lifetime of converter material (> 1 year).	1 (NO <sub>x</sub> measurement via converter possible)

### COMBUSTIBLE GAS SENSOR (PEL)

Two platinum spirals are each embedded in a ceramic layer and electrically connected via a bridge switch. The surface of the one platinum spiral is activated by a catalyst which boosts oxidation – the other platinum spiral is inactivated.

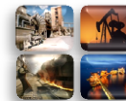
Current flows thru the spirals and heats them up to approx. 500°C. The air oxygen reacts with the flammable gas on the surface of the active spiral. As a result, temperature and resistance increase in the active platinum spiral. The bridge gets out of balance and is hereby a measure for the presence of flammable substances.



Gas / Vapour	Relative Sensitivity*	Gas / Vapour	Relative Sensitivity*
Methane	100	Carbon monoxide	120
Propane	65	Acetone	70
n-Butane	65	Methyl ethyl ketone	55
n-Pentane	55	Toluene	40
n-Hexane	55	Ethyl acetate	55
n-Heptane	45	Hydrogen	110
n-Octane	35	Ammonia **	140
Methanol	85	Cyclohexane	50
Ethanol	85	Leaded Petrol	60
Iso-propyl alcohol	65	Unleaded Petrol	60
Acetylene	90	Ethylene	90
1, 3-Butadiene	60		

\* Each sensitivity has been rounded to the nearest 5%  
\*\* T<sub>90</sub> for ammonia has been extended. Contact City Technology for further details.

APPLICATION FIELD	PARTICULARITY	MAX. NUMBER IN PRO TECH
Trend measurement for unburnt combustibles.		1 (requires one EC sensor position on gas channel plate)



**ECOM-J2KNpro TECH**

✓ = Belongs to delivery scope of basic unit ● = Option to basic unit



MEAS. VALUE	PRINCIPLE	RANGE	RESOLUTION	ACCURACY * = Higher value prevails	ITEM NO.
O <sub>2</sub>	EC	0...21 %	0,1 vol.%	± 0,3 vol. %	✓
CO ppm (n H <sub>2</sub> -c.)	EC	0...2000 ppm	1 ppm	± 20 ppm or 5% of measured value*	● (On request)
CO ppm (H <sub>2</sub> -co.)	EC	0...10.000 ppm	1 ppm	± 20 ppm or 5% of measured value*	● (30002050)
CO ppm (n H <sub>2</sub> -c.)	EC	0...20.000 ppm	1 ppm	± 40 ppm or 10% of measured value*	● (101714)
CO % (n. H <sub>2</sub> -c.)	EC	0...63.000 ppm	5 ppm	± 100 ppm or 10% of meas. value*	● (101505)
CO	NDIR (ADV)	0...1000 ppm	1 ppm	± 2% of measuring range end value	● (105534)
CO %	NDIR (STD)	0...63.000 ppm	10 ppm	± 200 ppm or 3% of measured value*	● (104996)
CO <sub>2</sub>	NDIR (ADV)	0...20%	0,01 vol.%	± 2% of measuring range end value	● (105534)
CO <sub>2</sub>	NDIR (STD)	0...20%	0,1 vol.%	± 0,3 vol.% or 3% of measured value*	● (101512)
NO	EC	0...5000 ppm	1 ppm	± 5 ppm or 5% of measured value*	● (101500)
NO Low	EC	0...500 ppm	0,1 ppm	± 2 ppm or 5% of measured value*	● (101501)
NO	CLD	0...1000 ppm	0,1 ppm	± 2% of measuring range end value	● (105511)
NO <sub>2</sub>	EC	0...1000 ppm	1 ppm	± 5 ppm or 5% of measured value*	● (101502)
NO <sub>2</sub> Low	EC	0...100 ppm	0,1 ppm	± 5 ppm or 5% of measured value*	● (101503)
NO <sub>2</sub>	PAS	0...200 ppm	0,1 ppm	± 2% of measuring range end value	● (105513)
NO <sub>x</sub>	CLD <sup>(1)</sup>	0...1000 ppm	0,1 ppm	± 2% of measuring range end value	● (105512-105512)
NO <sub>x</sub>	PAS <sup>(2)</sup>	0...200 ppm	0,1 ppm	± 2% of measuring range end value	● (105513)
SO <sub>2</sub>	EC	0...5000 ppm	1 ppm	± 5 ppm or 5% of measured value*	● (101504)
SO <sub>2</sub>	NDIR (ADV)	0...1000 ppm	1 ppm	± 2% of measuring range end value	● (105534)
C <sub>x</sub> H <sub>x</sub> (methane)	catalytic	0...4 %	0,01 vol.%	---	● (101561)
C <sub>x</sub> H <sub>x</sub> (propane)	NDIR (STD)	0...2000 ppm	1 ppm	± 4 ppm or 3% of measured value*	● (105514)
C <sub>x</sub> H <sub>x</sub> (methane)	NDIR (STD)	0...3%	0,001%	± 0,005 vol.% or 3% of meas. value*	● (105514)
H <sub>2</sub>	EC	0...20.000 ppm	1 ppm	± 100 ppm or 5 % of meas. value*	● (102137)
H <sub>2</sub> S (with filter)	EC	0...1000 ppm	1 ppm	± 10 ppm or 5 % of measured value*	● (103401)
T-Gas	NiCr-Ni	0...500°C	1°C	± 2°C (0-125°C) ± 3°C (125-250°C) ± 4°C (250-1100°C)	● See page 7
T-Gas	NiCr-Ni	0...1100°C	1°C	± 2°C (0-125°C) ± 3°C (125-250°C) ± 4°C (250-1100°C)	● See page 7
T-Air	Semi-conductor	0...99°C	1°C	± 1°C	✓
Pressure / ΔP	DMS bridge	± 100 hPa	0,01 hPa	± 0.5 hPa or 1% or measured value*	✓
Soot (integral)		0...9			●

<sup>(1)</sup> Via converter (transformation of NO<sub>2</sub> into NO + measurement); no NO<sub>2</sub> original measurement possible via CLD. Recommendation = combination of NO measurement (CLD) and NO<sub>2</sub> measurement (PAS).

<sup>(2)</sup> In combination with CLD = perfect for an exact and continuous NO<sub>x</sub> determination.

CALCULATION VALUES	RANGE	
CO <sub>2</sub>	0...CO <sub>2</sub> max	✓
Efficiency (ETA)	0...120%	✓
Excess air (Lambda)	>1	✓
Losses	0...100%	✓
CO <sub>(U)</sub> undiluted	x ppm	✓
Dew point	x°C	✓
mg/m <sup>3</sup>	x mg/m <sup>3</sup>	✓
mg/kWh	x mg/kWh	✓
O <sub>2</sub> reference	x %O <sub>2</sub>	✓
GAS SAMPLING SYSTEM		
Not included, at choice (see § Gas Sampling)		✓
Connection for heated sampling system, type SBK2		✓
COMBUSTION AIR SENSOR		
T-Room sensor (PT 2000) L = 100 mm, cable (ca. 3 m), magnet fixation & fixation cone		✓
T-Room stick (PT 2000)		✓
DATA INDICATION / DATA INPUT		
Detachable monitoring/controlling module Frequency 868 MHz, coverage by free sight approx. 50 m With magnet on the back for positioning at metal surfaces		✓
LCD colour display 78 x 58 cm, 320 x 240 dots, backlit, graphic- and zoom-capable		✓
Keypad with alphanumerical input function		✓

**T-ROOM MESUREMENT ALTERNATIVE**

**T-ROOM PROBE PT 2000**

- Length 260 mm, with 3 m cable



Item no. 104569

**ΔT 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
- Cable length: 3 m



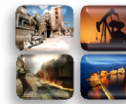
Item no. 12019

**CONTACT SENSOR T-GAS (NI/CRNI)**

- Range: -20 to 100°C
- Resolution: 0,1°C
- Measurement uncertainty: ± 1°C
- Suitable for pipe Ø up to 100 mm
- Cable length: 3 m



Item no. 12021



DATA PRINTOUT	
Integral thermal quick-printer, paper width 58 mm	✓
Matrix printer 58 mm (instead of thermal printer)	•
Address on protocol changeable by user (via keypad)	✓
DATA PROCESSING	
Slot for MM card; data logging function	✓
MM card	✓
USB data cable for data transfer to PC, length approx. 2 m	✓
Wi-Fi interface	✓
Data exchange with ecom <sup>®</sup> PC software	✓
Foldable antenna at basic unit for radio amplification	✓
CONNECTIONS	
Multi-function interface	✓
USB interface for data transfer	✓
Analog outputs	•
Analog inputs (2), 2 x 4...20 mA, or 2 x PT 2000 or 1 x 4...20 mA 1 PT 2000	•
MEASUREMENT GAS PREPARATION	
Extra-quick gas transport (quick availability of measurement data)	✓
Performing peristaltic pump	✓
Stainless steel gas cooler, automatic condensate evacuation (outside)	✓
Stainless steel gas cooler, automatic condensate evacuation (inside); large cooling body	✓
Integral magnetic valve for automatic, quasi-continuous gas sampling and measurement values recording	✓
POWER SUPPLY	
Mains power supply 230 V / 50 Hz~	✓
Lithium-Ion battery 6,4 V / 6,0 Ah with long-lasting operation	✓
Helix power cord	✓
OPERATION SAFETY	
Heated gas channel plate for avoidance of moisture formation	✓
Internal air pressure sensor (range 300 to 1100 hPa)	✓
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)	✓
Flow meter for optical control of pump performance	✓
Electronic condensation monitoring	✓
Longlife sensors	✓
Separate LCD display for monitoring & indication of operation stands of several elements like pump, probe heating, radio transfer quality as well as display of error messages.	✓
Electronic flow meter and monitoring.	✓
Automatic instrument switch-off by decreasing & insufficient pump performance.	✓
Toxic pollutants filter (NOx/SO <sub>2</sub> ) for CO sensor, large size	✓
Special PTFE filter for IR bench	✓
TRANSPORT	
Robust aluminium-framed transport case with 4 rolls and lockage caster	✓
Counter parts for fixation of optional top case	✓
Top case for stowage of gas sampling system and/or other parts	•
Comfort trolley	•
DIMENSIONS / WEIGHT / OTHERS	
Case dimensions basic unit: approx. 525 mm x 845 mm x 270 mm (W x H x D)	
Weight: depending on selected measuring equipment & transport options: from/to approx. 23-32 kg	
Calibration certificate, issued after instrument calibration into calibration chamber	✓
Aluminium housing with 10 years guarantee	✓
Admissible ambient temperature: +5... +40°C; max. 90 % rH, non-condensing	
Admissible storage temperature: -20... +50°C	
Fuel types: up to maximal 16 possible	
Recommended interval for check/maintenance: 1 year	

Item no. basic instrument: **106300**

**TRANSPORT OPTIONS**

**TOP CASE**

Stowage space for gas sampling system and/or further tools. With inner lid in case cover.

- Dimensions: approx. 525 x 570 x 255 mm
- Weight: approx. 5.1 kg



Item no. **105549**

**COMFORT TROLLEY**

For easy conveyance of analyser alone or with optional top case. With telescopic grip. Roll diameter: approx. 125 mm

- Dimensions: approx. 380 x 380 (970) x 130 mm
- Weight: approx. 1.8 kg



Item no. **105550**

**ANALOG INPUTS OPTION**

2 analog inputs for connection of external sensors

2 X 4...20 mA (Item no. **101589**)

2 X PT 2000 (Item no. **101591**)

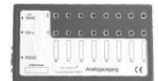
Each 1 4...20 mA/PT 2000 (Item no. **101592**)

**ANALOG INPUTS ACCESSORY**

**8-CHANNEL ANALOG OUTPUT BOX (V / mA)**

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**

**GAS FILTERING SOLID FUEL TYPES**

**SINTERED METAL PROBE PRE-FILTER**

Universal cap for probes Ø of 8 and 10 mm. Metal filter with micro pores preventing solid particles to penetrate the probe / the gas path. Cleaning with compressed air.



Item no. **103575**

**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 meas. value
- Resolution: 0.1 m/s

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

(Item no. **103478**)

**CONSUMABLES FOR STOCK**

Fine dust filter (pack of 10) Item no. **100568**

Thermal printer paper roll Item no. **50513**

Matrix printer paper roll Item no. **51596**

Soot paper (pack of 200) Item no. **50515**

NOx/SO<sub>2</sub> filter cartridge Item no. **52169**

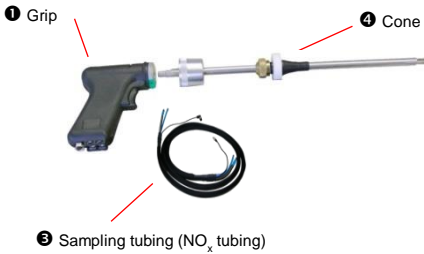
PTFE filter (for IR bench) Item no. **100803**



**GAS SAMPLING SELECTION**

Because of the variety of applications and the differing requirements related to each, the basic analyser does not cover a specific sampling system. The latest is to be selected by the user according to individual criterion among the following possibilities: pistol grip probe (SU/SB) with NO<sub>x</sub> sampling tubing or heated sampling system. Each option offers various lengths of probe tips and sampling tubing.

**CONCEPT SU/SB SAMPLING SYSTEM**



<b>1</b>	<b>PROBE GRIP</b>
	Grip, heated (=SB) With soot paper slot and heating function <b>(Item no. 30001073)</b>
	Grip, unheated (=SU) Without soot paper slot and heating function <b>(Item no. 101243)</b>
<b>2</b>	<b>PROBE TIPS SB/SU Ø 10 MM</b>
	LENGTH 300 mm <b>(Item no. 100912)</b>
	LENGTH 360 mm <b>(Item no. 100913)</b>
	LENGTH 450 mm <b>(Item no. 101234)</b> <sup>(1) *</sup>
	LENGTH 500 mm <b>(Item no. 100914)</b> <sup>(1)</sup>
	LENGTH 700 mm <b>(Item no. 100915)</b> <sup>(1)</sup>
	LENGTH 1000 mm <b>(Item no. 100916)</b> <sup>(1)</sup>
	LENGTH 1500 mm <b>(Item no. 100917)</b> <sup>(1)</sup>
	<b>HIGH-TEMPERATURE PROBE TIP</b>
	Application range up to 1100°C, with HT cone Ø 10 mm
	LENGTH 750 mm <b>(Item no. 101183)</b> <sup>(1)</sup>
	LENGTH 1000 mm <b>(Item no. 30001303)</b> <sup>(1)</sup>
	LENGTH 1500 mm <b>(Item no. 101608)</b> <sup>(1)</sup>
<b>3</b>	<b>NO<sub>x</sub> SAMPLING TUBING</b>
	LENGTH 3,5 m <b>(Item no. 30001057)</b>
	LENGTH 5,0 m <b>(Item no. 100477)</b> <sup>(1)</sup>
	LENGTH 7,0 m <b>(Item no. 30001241)</b> <sup>(1)</sup>
	LENGTH 10,0 m <b>(Item no. 100411)</b> <sup>(1)</sup>
<b>4</b>	<b>FIXATION CONE Ø 10 MM</b>
	Fixation cone with Teflon protective ring & stainless-steel tip <b>(Item no. 105256)</b>



\* Sell-out item. Availability request recommended.  
<sup>(1)</sup> Because of its length this item is not storable in the standard case. For transport purposes, it must be detached and stowed separately.

**HEAT-PROTECTIVE SHIELD**

- For probe tips SB/SU Ø 10 mm
- Material: AlMg<sup>3</sup>. Hole Ø 10 mm, with knurled screw
- Dimensions: approx. 195 x 120 x 1.5 mm
- Weight: approx. 90 g

**Item no. 101527**



**PROBE PIPE ACCESSORY**

- PROTECTION BAG**  
For probe tips (all types) up to 750 mm
- Material: fabrics
  - Dimensions: approx. 86 x 7.5 x 3 cm
  - Weight: approx. 350 g

**Item no. 55991**



**CONCEPT HEATED SAMPLING SYSTEM SBK2**

- 1** Heated head with probe pipe & thermocouple and cone
- 2** Heated tubing

A heated sampling head with hot gas filter for protection against premature soiling. The thermocouple is firmly connected to the head; an exchange of the probe tip against a longer version is practically possible, but the accuracy of the temperature values is no more guaranteed. Available lengths: 300 mm to 1500 mm.

The construction of the heated tubing heating which consists of a 7 m long tubing.

It consists of:

**1. Heated head with probe tip and cone**

Head with hot gas filter for protection against premature soiling. The thermocouple is firmly connected to the head; an exchange of the probe tip against a longer version is practically possible, but the accuracy of the temperature values is no more guaranteed. Available lengths: 300 mm to 1500 mm.

**2. Heated tubing**

Thanks to its heating the tubing avoids wash-out effects. Maximal operation temperature 200°C.

The SBK2 system is also suitable for 110V operation; prior consultation regarding temperature adjustment recommended.

**1 HEATED HEAD INCLUDING FIXATION CONE**

Pipe length 300 mm <sup>(2)</sup>	<b>(Item no. 102950)</b>
Pipe length 500 mm	<b>(Item no. 102951)</b>
Pipe length 700 mm	<b>(Item no. 102952)</b>
Pipe length 1000 mm	<b>(Item no. 102953)</b>
Pipe length 1500 mm	<b>(Item no. 102953)</b>

**2 HEATED TUBING 230 VAC, 100 W/M**

Length 3,4 m <sup>(2)</sup>	<b>Item no. 102960</b>
Length 7,0 m	<b>Item no. 102961</b>

**3 COMPLETE SYSTEM WITH TUBING 3.4 M**

Head with pipe length <sup>(2)</sup> 300 mm	<b>Item no. 102955</b>
Head with pipe length 500 mm	<b>Item no. 102956</b>
Head with pipe length 700 mm	<b>Item no. 102957</b>
Head with pipe length 1000 mm	<b>Item no. 102958</b>
Head with pipe length 1500 mm	<b>Item no. 102959</b>

**COMPLETE SYSTEM WITH TUBING 7.0 M**

Head with pipe length 300 mm	<b>Item no. 103040</b>
Head with pipe length 500 mm	<b>Item no. 103041</b>
Head with pipe length 700 mm	<b>Item no. 103042</b>
Head with pipe length 1000 mm	<b>Item no. 103043</b>
Head with pipe length 1500 mm	<b>Item no. 103044</b>

<sup>(2)</sup> Item can be stowed in optional under-case.



**HEATED HEAD ACCESSORY**

**HANDLE, FOR HEATED HEAD**

- Bracket made out of galvanized steel, with aluminium grip and NBR rubber
- Weight: ca. 310 g

**Item no. 100942**







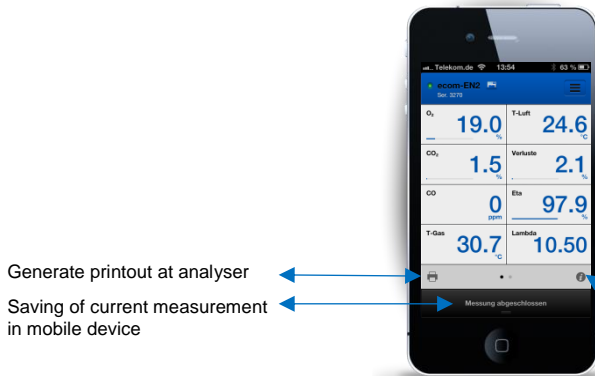
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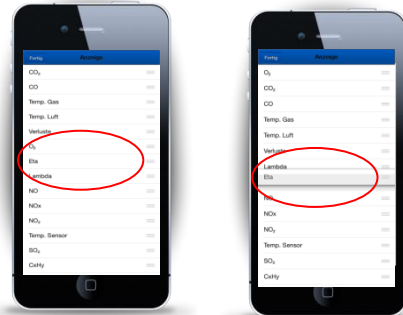
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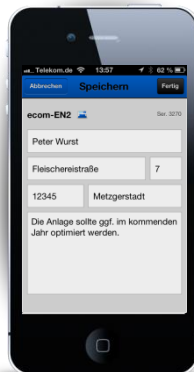
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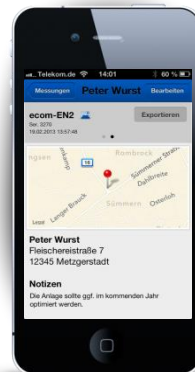
Generate printout at analyser  
Saving of current measurement  
in mobile device



Edition of measurement values (succession + fade in/out)



Recording of name,  
address + notes



Customer information  
incl. geo data



Export data: PDF, csv



By e-mail, Cloud,  
printout



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 or upgradeable with radio module, Bluetooth or Wi-Fi option 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.

**FOCUSED APPLICATION RESPECTIVELY USER PROFILE ECOM<sup>®</sup> FLUE GAS ANALYSERS**



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Heating installer



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**BURNER & BOILER MANUFACTURERS**  
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