ecom®

Products 2011/2012

How is Quality of Life produced at all?

In 1985 the founders of rbr Messtechnik GmbH. Michael Reckermann, Wolfgang Binz and Rüdiger Rehkop, had a vision: to develop, produce and successfully sell flue gas analysers. More than 25 years later this vision has turned into reality. Today, ecom flue gas analysers are used in more than 35 countries worldwide. Further products like pressure meters, thermal imaging cameras, etc. offer a rounded-up programme for heating installers, chimney-sweeps and industrial markets.

Some facts are worth to be outlined in this success story:

- rbr is a German medium-sized family company managed by Frank and Wolfgang Binz,
- the production is exclusively run at the Iserlohn headquarters thus granting the quality the “Made in Germany” label,
- the product quality philosophy is reflected in the afters-sales and service business – provided by competent service centres with certified test benches in and outside Germany.

Please challenge us anytime, feel free to ask any question and particularly: let us produce your bit of quality of life!

Jennifer Binz
Marketing Manager
mail@rbr.de

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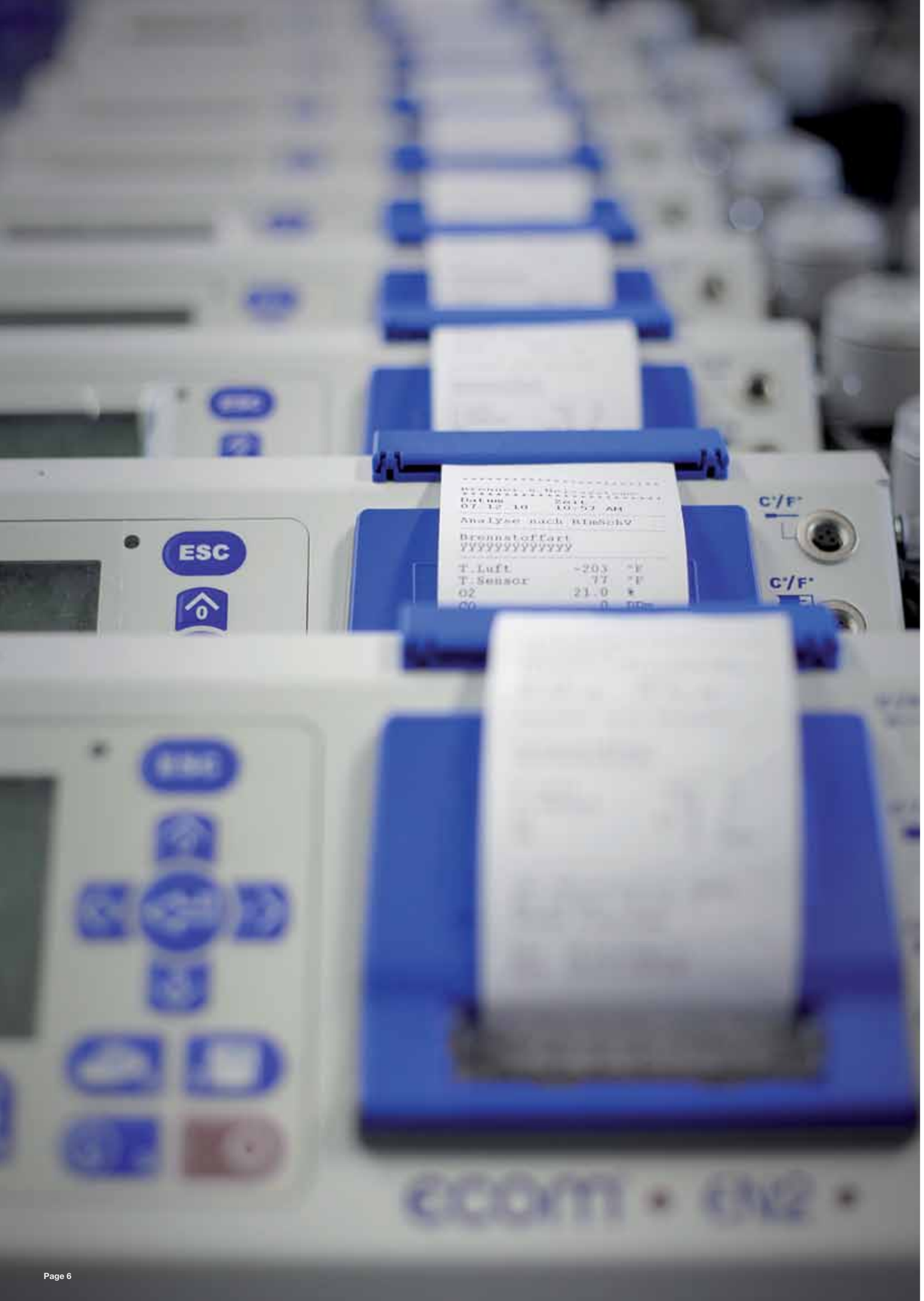

ecom-Flue Gas Analyzers

The ecom flue gas analysis is looking back at a short but very successful history. Many of the instruments still in use today have already witnessed the Fall of the Berlin Wall in 1989. Production quality paired with longevity, perfected instrumental engineering combined with a competent service network point out the special quality of ecom flue gas analysers. The wide range of products – starting with the ecom-CN handheld analyser over the compact unit-series ecom-CL and ecom-EN2 up to the ecom-J2KN-pro – does not leave much open still to wish.

As a pioneer in flue gas analysis ecom has generated over the years a great Know-how and many technical advantages that are reflected by a highly updated products variety:

		Wall-mounted boiler gas	Wall-mounted boiler oil	Floor-standing boiler gas	Floor-standing boiler oil	Wood pellet boilers	Solid fuel boilers	Oil and gas units > 1MW	Condensing boiler/Turbine
Control	1 min.	ecom-CL/CN	ecom-CL/CN	ecom-CL/CN	ecom-CL/CN	ecom-EN2 with pre-filter	ecom-EN2 with pre-filter	ecom-EN2	ecom-J2KNpro
	15 min.		ecom-EN2		ecom-EN2-R			ecom-J2KNpro	
Adjustment	30 min.	ecom-EN2		ecom-EN2			ecom-J2KNpro with pre-filter		
	1 h	ecom-J2KNpro	ecom-J2KNpro	ecom-J2KNpro	ecom-J2KNpro	ecom-J2KNpro with pre-filter			
	4 h	ecom-J2KNpro industry	ecom-J2KNpro industry	ecom-J2KNpro industry	ecom-J2KNpro industry	ecom-J2KNpro idustry with pre-filter	ecom-J2KNpro idustry with pre-filter	ecom-J2KNpro industry	ecom-J2KNpro industry
Emission Measure-ment	< 24 h					x	x		
	> 1 day	ecom-SG Plus	ecom-SG Plus	ecom-SG Plus	ecom-SG Plus			ecom-SG Plus	ecom-SG Plus

ecom-CN

Palm Analyser

Handy and compact: the ecom-CN nearly fuses with the hand of its user in order to manage the flue gas analysis in a very easy way. An optimized equipment and a wide range of accessories just make the ecom-CN the outstanding handheld of the ecom range.

ecom-CN

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C),
T-Air (0-99 °C), pressure (± 0-20 hPa),
differential pressure (option)*

Sensor Options:
NO (0-5000 ppm), CO% (0-63.000 ppm)*

Calculated Values
CO_2, CO(U), NOx, efficiency (0-120%), losses, lambda,
dew point, mg/m3, mg/kWh, O_2-reference

Display
LCD-display, 70 x 40 mm, max. 8 lines,
backlit, graphik capable

Probe
Coaxial probe 220 mm* with triple-chamber hose 2,20 m*

Preparation of Measuring Gas
Condensate trap with fine-particle filter
Electronic condensate monitoring

Safety
Temperature trend indication for stream core determination
CO shut-down without interruption of measurement
Fresh air flushing by CO exceeding
Fresh air flushing after measuring operation

Printer
IR interface for printer

Connections
Serial interface for data transfer

Data Processing
Internal memory (4000 measured values)
IRDA interface
Bluetooth interface (option)*
Data exchange with PC program (option)*

Transport
Transport bag (option)*
Transport case (option)*

Dimensions/Weight
Dimensions (W x H x D): 115 x 250 x 70 mm
Weight: approx. 1.5 kg complete with sampling system

Approved according to EN 50379-2 and 1st BImSchV

- **Fast-charging Ni-MH-batteries**
- Free data processing software (download at www.rbr.de)
- Position-independent condensate trap

- **Infrared / RS 232 data interface**
- Up to three gas sensors
- Automatic CO sensor protection
- Backlit and graphic-capable display

Order Data:

Item. No.	Item
1100002	ecom-CN flue gas analyser, with O_2, CO, complete with sampling system
52000	Textile carrying bag with magnet for ecom-CN with removable carrying shoulder strap, protection foil for display and keypad
60124	Transport case, made out of plastics, Case: storage compartments for instrument, T-Room sensor, external printer, tubing, manual smoke pump and batteries. Cover fitted with various metal probes fixations, protection foam Dimensions (W x D x H): approx. 530 x 420 x 120 mm
60089	Transport case Deluxe, alu-framed, with shock protective corners Case: storage compartments for instrument, T-Room sensor, tubing, external printer, batteries. Cover: storage compartments: 3 textile pockets with elastic band, different metal fixations for probes and manual soot pump.
3140300	IR-thermal printer ecom-P for documentation of the measured values, dimensions: approx. 76.8 x 77.4 x 39.3 mm
100571	Bluetooth option Transfer of measurement data, data recording, remote monitoring of ecom-CN

***Further options/accessories like various thermocouples or sampling systems are available.**

ecom-CLV
Compact Analyser

The first step into flue gas analysis.

ecom-CLV

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C), T-Air (0-99 °C), pressure (± 0-20 hPa)

Calculated Values:
CO_2, CO(U), efficiency (0-120%), losses, lambda, dew point, mg/m3, mg/kWh, O_2-reference

Sampling Probe
Standard probe 220 mm*
with triple-chamber hose 2.20 m*

Preparation of Measuring Gas
Basic condensate trap without electronic monitoring

Safety
Temperature trend indication for stream core determination

Printer
Thermal printer 58 mm

Connections
Connection for gas leak detector ecom-LSG
Serial interface for data transfer

Data Processing
Internal memory (300 measurements)

Transport
Split-leather transport bag

Weight/Dimensions
Dimensions (W x H x D): 350 x 200 x 135 mm
Weight: approx. 4 kg complete with sampling system

- **Small and compact**
- With light split-leather transport bag

- **Integral thermal printer**

Order Data:

Item No.	Item
1070052	ecom-CLV complete with sampling system and split-leather bag

***Further options/accessories like various thermocouples or sampling systems are available.**

ecom-CL

Compact Measurement Instrument

The ecom-CL is an all-round model for business starters, ideal for measurements at gas fired units.

ecom®

ecom-CL

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C),
T-Air (0-99 °C), pressure (± 0-20 hPa),
differential pressure as option*

Sensor option: NO (0-5000 ppm)

Calculated Values
CO_2, CO(U), NOx, efficiency (0-120 %), losses, lambda,
dew point, mg/m3, mg/kWh, O_2-reference

Display
LCD-display, 70 x 40 mm, max. 8 lines,
backlit, graphic-capable

Probe
Standard probe 220 mm*
with triple-chamber tubing 2.20 m*

Preparation of measurement gas
Condense water trap with fine dust filter
Electronic condense water monitoring

Safety
Temperature trend indication for stream core determination
CO shut-down without interruption of measurement
Fresh air flushing by CO exceeding
Fresh air purge after measuring operation

Printer
Thermal printer 58 mm

Connections
Connection for gas leak detector ecom-LSG
Serial interface for data transfer

Date processing
Internal memory (300 measurements)

Transport
Transport case
Under case (option)*

Dimensions/Weight
Dimensions (W x H x D): 360 x 245 x 150 mm
Weight: approx. 5 kg complete with sampling probe

Approved according to EN 50379-2

- **Compact and easier than a hand held instrument**
- CO switch-off and fresh air purge
- **Long-life sensors**
- Electronic condense water monitoring

Order Data:

Item No.	Item
1070023	ecom-CL, complete in aluminium-framed case with 220 mm probe

***Further options/accessories** like NO sensor, alternative probe lengths, temperature probe, soot pump set or an under-case are available.

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ecom-EN2

Compact Measurement Instrument

The ecom-EN2 is the multi-talent in the flue gas analysis – easy and compact on the one hand side, fitted with top technology on the other side – configurable with many additional options but above all an exciting instrument to work with.

ecom-EN2

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C), T-Air (0-99 °C), pressure (± 100 hPa), differential temperature, differential pressure

Sensor Options: NO (0-5000 ppm), NO_2 (0-1000 ppm), SO_2 (0-5000 ppm), CO ppm (extended range: 0-10.000 ppm), CO% (0-63.000 ppm)*

Display
LCD-display, 79 x 53 mm, 240 x 120 dots, backlit, 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)
Electronic gas cooler (option)

- **Robust, compact and light weight**
- Automatic CO shut-down by CO exceeding for protection of CO-Sensor
- Condensate trap with safety shut-off

- **Thermal quick printer**
- Fast response time
- Under case available in two different heights (option)*

- **Long-life sensors**
- Heating Check and 4 Pa Test (option)*
- Up to four gas sensors

Safety
Temperature trend indication for stream core determination
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 (option)*

Transport
Transport case, aluminium-framed
Under case for transport case (option)*

Approved according to EN 50379-2 and 1st BImSchV

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

NEW: Option „Pressure Test“ (Loading Test, Tightness Check, Usability check) according to TRGI (see page 31) – also as upgrade package. Item. No. 101394

Order Data:

Item No.	Item
1080000	ecom-EN2, complete with 220 mm SCD probe in aluminium-framed case
1080100	ecom-EN2, complete with 220 mm SCD probe fitted in aluminium-framed case but with Mini-Peltier cooler instead of condense trap
101393	ecom-EN2, incl. O_2, CO, NO sensor, complete with 220 mm SCD probe fitted in aluminium-framed case but with Mini-Peltier cooler instead of condense trap

***Further options/accessories** like integrated Heating Check or 4 Pa Test, manual soot pump set storable in case cover per fixation set, alternative lengths and style for temperature and gas probes as well as under cases are available.

Want to earn some extra money?

An offer for your customers which will pay off also for you in the long run...

A lot of heating installers and chimney-sweeps meanwhile evaluate the efficiency of the complete heating system according to a standardised process. This means first extra money for them. While the additional costs bound to this check are limited in that it is often combined with the standard heating maintenance (approach, etc already covered) the customer is briefed on potential improvement in regards of heat generation, distribution and transfer. He will be most glad to learn how just a small investment in tubing isolation, a new heating pump, radiator thermostat or by making the hydraulic adjustment could generate huge savings in heating costs.

This procedure is the so-called Heating Check according to DIN EN 15378 and it can be performed by every heating installer after participating in a simple training.

Official support is even partly provided for the implementation of the Heating Check and the works related to. Also the industry or a few institutes grant numerous subsidies so that the Heating Check retrospectively pays off for the end user without too large expenses.

Most important is: in that he performs the Heating Check the heating installer will get an overview of the complete system and, based on objective data, be able to demonstrate the house owner that, for instance his old boiler of 1983 is definitely no state of the art anymore or that new thermostats could significantly contribute to an increased energy efficiency.
Customers can prepare themselves to larger investments e.g. in new condensing boiler technology and save the needed money while the heating installer can repeatedly point out the modernisation potential and be well confident to be granted the installation upgrade order medium term.
Getting prepared to step into the Heating Check business requires a good pre-information (who offers trainings and where should they take place? – Where to apply for subsidies and get the corresponding forms?).
The rbr website offers hereto a clearly arranged information source.

From the equipment point of view, future Heating Checkers will find in our range as well a complete and compact set for professionals (consisting of ecom-EN2 analyser with Heating Check option & full accessories and Heating-Check-Software) or – by already existing instrument- the completing kit ecom-DPH incl. software.

Heating Check Full Package	
Item. No.	**Item Description**
1080000	ecom-EN2 Compact measurement instrument - see P. 13
5010216	Option „Heating Check“ incl. pressure flow and surface temperature probes
56421	Under case for ecom-EN2, height 10 cm
56570	Foam insert for ecom-EN2 under case
50102223	Data cable and MM card for data transfer
55612	Heating Check software „Professional“
Heating-Check Upgrade Kit	
3140400	ecom-DPH for Heating Check - see P. 36/37
55613	Heating Check software „Standard“

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ecom-EN2-R

Compact Analyser

ecom-EN2´s „big brother“ for all those users who do not want to renounce to an integrated soot measurement feature. The ecom-EN2-R hereby offers all advantages his „little brother“ also does – from the extensive operation safety features up to the wide accessory programme – like e.g. optional Heating Check resp. 4 Pa Test.

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C), T-Air (0-99 °C), pressure (± 100 hPa), differential temperature, differential pressure

Sensor Options: NO (0-5000 ppm), NO_2 (0-1000 ppm), SO_2 (0-5000 ppm), CO ppm (extended range: 0-10.000 ppm), CO% (0-63.000 ppm)*

Display
LCD-display, 79 x 53 mm, 240 x 120 dots, backlit, graphic-capable

Probe
Coaxial probe 250 mm* with triple-chamber hose 3 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)*
Electronic gas cooler (option)*

Safety
Temperature trend indication for stream core determination
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)*

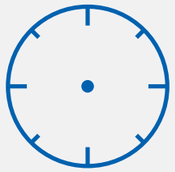
Connections
Charger connection at case outside
Multifunctional interface
USB interface for data transfer
Bluetooth interface for data transfer (option)*

Data processing
Multi-Media card (2000 values per MB)
Data exchange with PC programme (option)*

Transport
Transport case, aluminium-framed
Under case for transport case (option)*

Dimensions/Weight
Dimensions (W x H x D): 400 x 275 x 205 mm
Weight: approx. 7 kg complete with sampling system

Approved according to EN 50379-2 and 1st BImSchV



- **Robust, compact und light-weighed**
- Automatic CO shut-down by CO exceeding for protection of CO-Sensor
- Condensate trap with safety shut-off
- Fast response time
- **Thermal quick printer**
- Under case available in two different heights (option)*
- Heating Check and 4 Pa Test (option)*
- Up to four gas sensors
- **Long-life sensors**

NEW: Option „Pressure Test“ (Loading, tightness, usability checks) according to TRGI (see page 31) – also as upgrade package. Item. No. 101468

Order Data:

Item No.	Item
101248	ecom-EN2-R, complete with 250 mm SB probe fitted in aluminium-framed case
101336	ecom-EN2-R, complete with 250 mm SB probe fitted in aluminium-framed case but with Mini-Peltier cooler instead of condense trap

***Further options/accessories** like integrated Heating Check or 4 Pa Test, alternative lengths and style for temperature and gas probes as well as under case are available.

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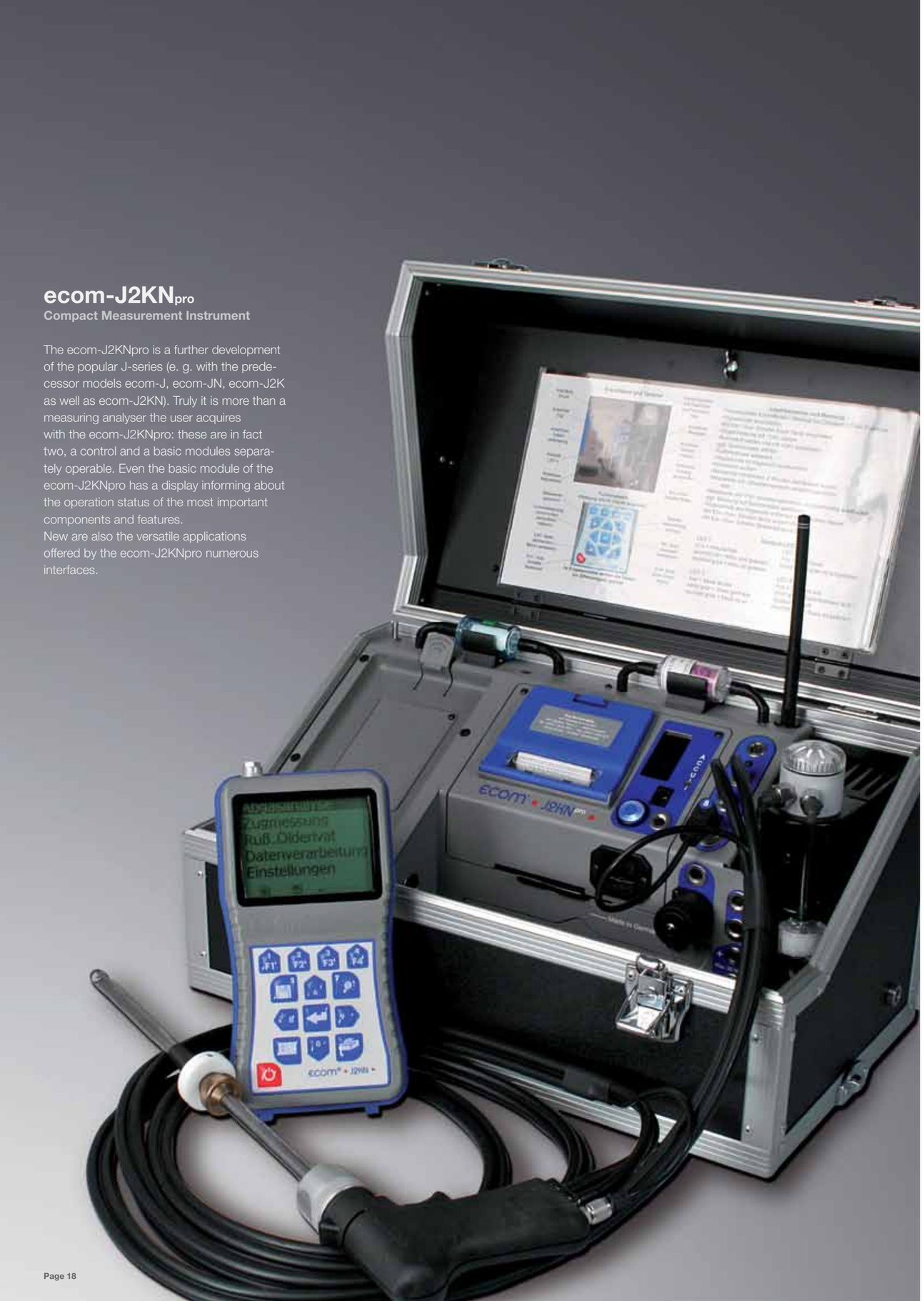

ecom-J2KN$_{pro}$

Compact Measurement Instrument

The ecom-J2KNpro is a further development of the popular J-series (e. g. with the predecessor models ecom-J, ecom-JN, ecom-J2K as well as ecom-J2KN). Truly it is more than a measuring analyser the user acquires with the ecom-J2KNpro: these are in fact two, a control and a basic modules separately operable. Even the basic module of the ecom-J2KNpro has a display informing about the operation status of the most important components and features.
New are also the versatile applications offered by the ecom-J2KNpro numerous interfaces.

ecom-J2KN$_{pro}$

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C), T-Air (0-99 °C), pressure (± 100 hPa), differential temperature, differential pressure, internal air pressure sensor (300-1100 hPa), soot

Sensor Options: NO (0-5000 ppm), NO_2 (0-1000 ppm), SO_2 (0-5000 ppm), CO ppm (extended range: 0-10.000 ppm), CO% (0-63.000 ppm), CxHy-measurement (catalytic – 0-4 vol.%), H_2 measurement (0-2000 ppm)*

Display
LCD-display, 78 x 58 mm, max. 8 lines, backlit, graphic-capable

Probe
Pistol grip probe 290 mm* with triple-chamber hose 3 m*
Electric heated probe for dry soot patterns

Printer
Thermal quick printer 58 mm
Matrix printer 58 mm (option)*

- **Long-life sensors**
- Measurement case and palm instrument in one
- Heating Check (option)*

- **Radio transfer** (control module, PC, ecom-AK - P. 29)
- Removable control module with graphic display
- Status display integrated in basic module

- **Maintenance free thermal quick-printer**
- Up to six electrochemical sensors
- Under case (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 trend indication for stream core determination
CO shut down without interruption of measurement
Fresh air flushing by CO exceeding
Fresh air flushing after measuring
Contaminant filter for CO sensor

Data processing
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 software (option)*

Connections
Connection for external keypad
Serial interface for data transfer

Transport
Transport case
Transport case with under case and trolley (option)*
Protection case for aircraft transportation (option)*

Dimensions/Weight
Dimensions (W x H x D): 440 x 300 x 250 mm
Weight: approx. 12 kg complete with sampling system

Approved according to EN 50379-2 and 1st BImSchV

Order Data:

Item No.	Item
101280	ecom-J2KNpro Easy, complete with 290 mm pistol grip probe fitted in aluminium-framed case
101281	ecom-J2KNpro Expert, complete with 290 mm pistol grip probe fitted in aluminium- framed case – with NO sensor, NOx tubing and Peltier cooler

***Additional options/accessories** like integrated Heating Check, alternative lengths and style of temperature and gas probes, software, data transfer and under case are available.

Flue Gas Analysis at Condensing Boilers and Large-sized Plants: The ideal case for the ecom-J2KNpro

How to measure flue gas concentration and simultaneously optimize adjustments at a condensing boiler or large-sized plant?

ecom-J2KNpro = two measuring instruments in one:
With the J2KNpro service engineers directly view the measurement results of their adjustments and save here-with a walk around the plant. In addition to a shortened measurement time, the system functionality easies the optimal adjustment of every large-sized combustion plant.

Long-lasting control measurements:
Also long-lasting control measurements are handled differently by the ecom-J2KNpro vs. other measuring instruments: while the basic module stays in another room, on a measurement platform etc. the measurement data can be viewed on the control module or be transferred to a PC. Hereby it can be found out under which circumstances (for example production-, adjustment-, temperature- or time-depending) a plant in continuous operation can be optimized and its efficiency increased.

Optimal Burning = Energy Efficiency = Cost Reduction:
This simple equation leads more and more companies to combine CO_{21}-saving targets with energy efficiency and cost reduction, regular measurements and facility optimization saved for instance an industrial customer some 3000 m^3 of his monthly consumption.

„Be on the safe side“ in regards of emissions:
The respect of emission limits is given an increasing importance in environmental politics. It makes consequently much sense, prior to an official measurement control (e.g. checks in the frame of company environmental management) to be on the safe side when considering nitrogen oxides, sulphur oxides, hydrocarbons, etc. emissions and to avoid unnecessary and costly post-checks.

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ecom-J2KN$_{pro\ industry}$

Compact Analyser

The ecom-J2KNpro industry reflects the absolute top class of industrial flue gas analysis applications. Optional fitting with an infrared measuring bench, special gas sensors, variable data recording transfer and evaluation make an unbeatable price-benefit-ratio.

ecom-J2KN$_{pro\ industry}$

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), T-Gas (0-500 °C),
T-Air (0-99 °C), differential pressure (± 100 hPa), soot

Optional Gas Sensors
Electrochemical principle: CO % (0-63.000 ppm),
NO (0-5000 ppm), NO_2 (0-1000 ppm),
SO_2 (0-5000 ppm), H_2S, H_2 (0-2000 ppm),
NH_3, HCl, CxHy (catalytic – 0-4 vol.%)*
Infrared principle: CO_2 (0-20 %),
CO% (0-63.000 ppm), C_3H_8 (0-2000 ppm)
or CH_4 (0-30.000 ppm)*

Calculated Values
CO_2, CO(U), efficiency (0-120 %), losses, lambda, dew point, mg/m3, mg/kWh, O_2-reference

Display
LCD-display, 78 x 58 mm, 320 x 240 dots,
backlit, graphic-capable

Connections
Connection for external keypad
Serial interface for data transfer

- **Long-lasting measurements in automatic mode**
- Up to 8 gas components measurable– also per infrared technology

Preparation of measuring gas
Quick gas transport (measurement values promptly available)
Fine dust filter
Automatic condensate evacuation
Electronic condensation monitoring
Electric gas cooler made out of stainless steel

Safety
Temperature trend indication for stream core determination
CO switch off without interruption of measurement
Fresh air flushing by CO exceeding
Fresh air flushing after measuring
Contaminant filter for CO sensor
Magnetic valve for long-lasting measurements
PTFE inner tubing
Extension of radio transfer coverage (option)*

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

- **Radio transfer** (control module, PC*, ecom-AK - P. 29)
- Detachable control module with graphic display
- Status display integrated in basic module

Probe
Pistol grip probe 290 mm* with triple-chamber tubing 3 m*
Electric heated soot probe for dry soot patterns (option)*
High-temperature probe 750 mm 1100°C (option)*
Heated sampling system (option)*

Data Processing
MM card as data memory (option)*
Measured values series on multi-media card
Data exchange with PC programme (option)
Data interface for radio transfer (option)*
External keypad for data input (option)*
Online DAS programme (option)*

- **Transport case with trolley (option)***
- Heated sampling system (option)*
- Long-life sensors

Analog outputs (option)*

Transport
Transport case
Transport case with under case and trolley (option)*
Protective case for aircraft transportation (option)*
Outdoor case for in- and outdoor instrument operation by closed lid (option)*

Dimensions/Weight
Dimensions (B x W x D): 500 x 300 x 250 mm
Weight: approx. 14 kg complete with sampling system

NEW: J2KNpro Power pack long-lasting measurement without electric power supply source.
Autonomy: approx. 6-12 hours

***Additional options/accessories** like integrated Heating Check, alternative lengths and style of temperature and gas probes, software, data transfer and under case are available.

Please contact us for an intensive consultation to this product. The versatile specifications and the wide selection list of accessories surely will certainly offer a customized solution for your application.

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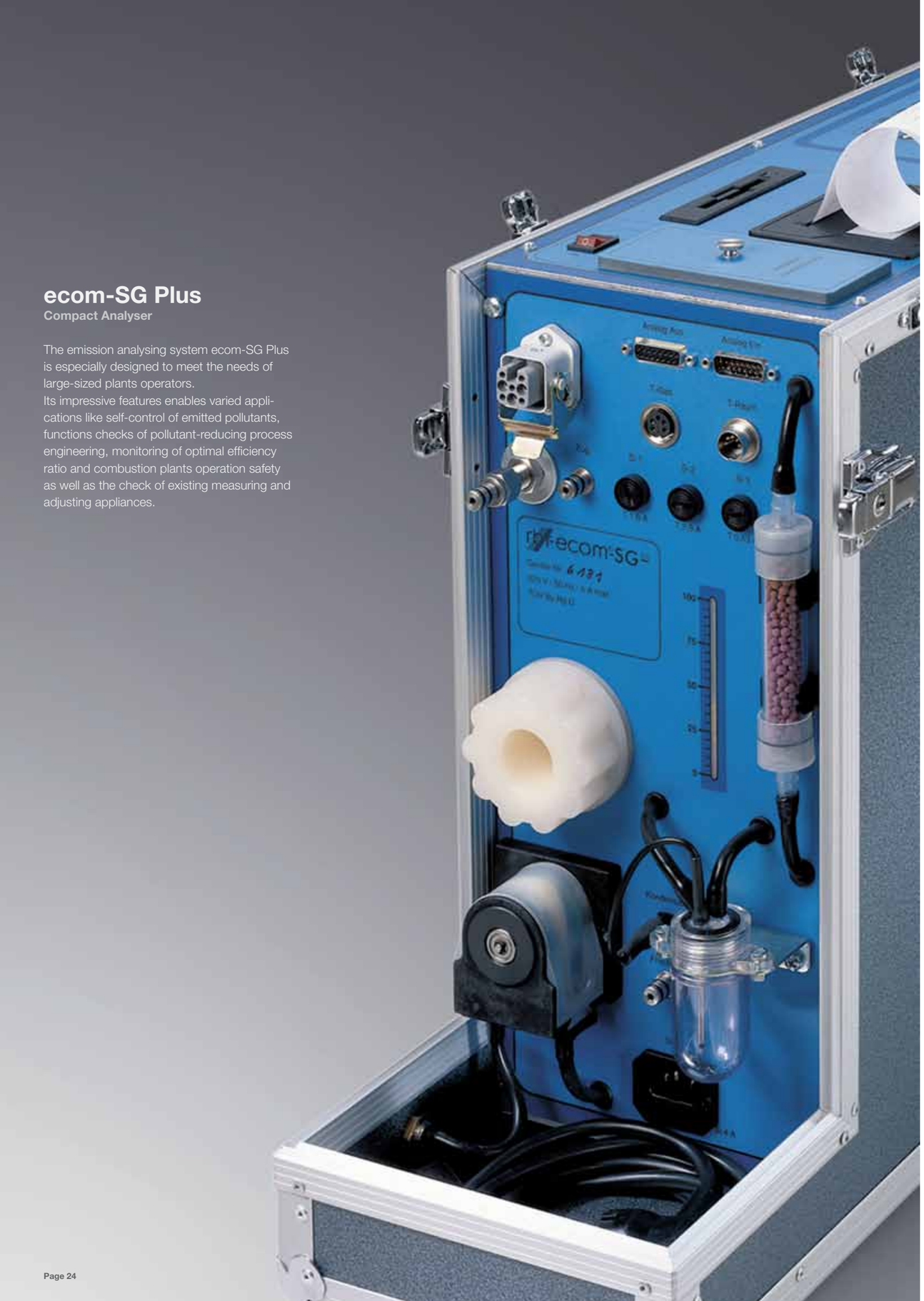

ecom-SG Plus

Compact Analyser

The emission analysing system ecom-SG Plus is especially designed to meet the needs of large-sized plants operators.
Its impressive features enables varied applications like self-control of emitted pollutants, functions checks of pollutant-reducing process engineering, monitoring of optimal efficiency ratio and combustion plants operation safety as well as the check of existing measuring and adjusting appliances.

ecom-SG Plus

Measured Values
O_2 (0-21 %), CO (0-4000 ppm), NO (0-5000 ppm),
NO_2 (0-1000 ppm), SO_2 (0-5000 ppm)
Optional gas sensors: CO% (0-63.000 ppm) as well as
CxHy (catalytic – 0-4 vol.%),
T-Gas (0-500 °C),
T-Air (0-99 °C), differential pressure (± 100 hPa), soot

Calculated Values
CO_2, CO(U), efficiency (0-120 %), losses, lambda, dew point, mg/m3, mg/kWh, O_2-reference

Display
LCD-display, 130 x 40 mm, max. 8 lines,
backlit, zoom-capable

Probe
Pistol grip probe 290 mm with
triple-chamber tubing 3 m (option)
Electric heated probe for dry soot patterns (option)
Heated sampling system (option)
High temperature probe 750 mm 1100 °C (option)

Gas Processing
Large PTFE or micro-glass fibre filter
Electronic condensation level control
Electric gas cooler
Automatic condensate drainage

Safety
CO switch-off without measurement interruption
Fresh air purging by CO exceeding/after measurement operation
Separate fresh air inlet
Separate pollutants filter for CO sensor
Instrument internal heating and air-conditioning
Automatic operation

Printer
Matrix printer 58 mm

Connections
Serial interface for data transfer
Centronics interface
Connection for distant reading monitor
Connection heated soot probe

Data Processing
Measured values series on integral printer
Measured values series on RAM card
Measured values series to PC in Excel format
Long-lasting measurements

Transport
Transport case

Dimensions/Weight
Dimensions (L x H x D): 600 x 510 x 250 mm
Weight: approx. 25 kg complete with sampling system

- **Long-lasting measurement in automatic operation**
- Up to 8 gas components
- Heated sampling system

Please contact us for an intensive consultation to this product. The versatile specifications and the wide selection list of accessories surely will certainly offer a customized solution for your application.

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Solid Fuel Gas Analysis

Flue gas analysis at solid fuels fired-plants – no big deal with the suitable filter technique.

Combustion plants firing solid fuels are getting more and more popular. New processes (Pellet heating) and improved burn-out features led in the past years to a market increase in the solid fuels combustion business.
Despite of all improvements provided by the burning systems, the flue gases still contain a large number of substances harmful to the electrochemical sensors of flue gas analysers.

Problematic in this context are above all:
- the increased dust contamination and
- organic compounds

With relative easy and low cost solutions the flue gas analysers can be protected against damages caused by these substances.

a) Combination of Gas Washing bottle and Peltier cooler

The dusty flue gas is pre-filtered and its surface is enlarged by bubble formation. In the water bath the sensor damaging organic compounds are separated while the Peltier cooler dries out the measurement gas. Appreciable side effect: flue gas drying down to 5°C significantly increases the sensors lifespan.

Peltier cooler and gas washing bottle are both optional features to the flue gas analyser (ecom-EN2 resp. ecom-J2KNpro).

Gas Washing Bottle for ecom-EN2 (Peltier cooler compulsory)

With integrated filter for pre-filtering of dusty flue gas, flue gas surface increasing by bubble building and separation of sensor-damaging organic compounds,
Length of tubes: approx. 1.0 m
Dimensions: approx. 180 mm, Ø 70 mm, Weight: approx. 300 g

Item. No.100814

Gas Washing Bottle for ecom-J2KNpro (Peltier cooler compulsory)

With integrated filter for pre-filtering of dusty flue gas, flue gas surface increasing by bubble building and releasing of sensor-damaging organic compounds,
Length of tubes: approx. 1.0 m
Dimensions: approx. 180 mm, Ø 70 mm, Weight: approx. 300 g

Item. No. 100815

b) Filtering Plate for ecom instruments

The filter plate consists of different components: water trap for flue gas pre-drying, fine dust filter for particles pre-filtering, drying cartridge for flue gas drying out before the hydrocarbon filter finally removes the sensor-damaging compounds.

Mini-Filter plate for solid fuel measurements
Covering each 1 water trap, cartridge filtering wool,
cartridge silicon gel and cartridge activated carbon
Dimensions: approx. 145 x 180 x 50 mm, Weight: approx. 0.5 kg

Item. No. 100813

Mini-Filter plate for solid fuel measurements for ecom-J2KNpro
Covering each 1 water trap, cartridge filtering wool,
cartridge silicon gel and cartridge activated carbon
Dimensions: approx. 145 x 180 x 50 mm, Weight: approx. 0.5 kg

Item. No. 50000024

c) Mobile Filtering Case

The item covers also water trap, cartridge filtering wool, cartridge silicon gel and cartridge actived carbon.

Filtering Case for Solid Fuel Measurements

Covering each 1 water trap, cartridge filtering wool,
cartridge silicon gel and cartridge actived carbon
Dimensions: approx. 290 x 350 x 100 mm, Weight: approx. 2.6 kg

Item. No. 55810

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With these displays ecom gives a big buildup to your measurement results:

Giant display with 9 indications
(compatible model ranges ecom-EN2, ecom-J2KNpro)

Ideal for burner adjustment by separated sampling and adjustment points, training purposes, etc.

Standard channels:
O_2, CO, losses, CO_2, NO, NOx, T-Gas, T-Room, lambda

Dimensions: (H x W x D):
620 x 500 x 65 mm

Weight:
approx. 3.0 kg

With mains power cable 2 m

Item No. 100901

Giant display with 9 indications
(compatible model ranges ecom-EN2, ecom-J2KNpro)

As 100901, but without logo and additional lettering

Standard channels:
O_2, CO, losses, CO_2, NO, NOx, T-Gas, T-Room, lambda

Dimensions: (H x W x D):
620 x 500 x 65 mm

Weight:
approx. 3.0 kg

With mains power cable 2 m

Item No.100900

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The required accessory for your specific measurement application…

… is listed only partially in this documentation. Feel free to contact your ecom sales representation by any question or need for further parts (e. g. alternative probe or tubing lengths, tubing extension, telescopic probe and so on).

Soot Measurement

Soot Pump Set

Consisting of each 1 pce manual soot pump, soot comparison scale, tube of piston grease, socket wrench as well as 200 soot papers
Length: approx. 390 mm
Weight: approx. 0.5 kg

Item No. 50538

Sensors and Probes

T-Room-Stick

For room temperature analysis, compatible to ecom-CL, ecom-CN, ecom-EN2 / EN2-R, ecom-J2KN, ecom-J2KNpro
Dimensions: approx. 28 x Ø 11 mm
Weight: approx. 5 g

Item No. 51446

Universal Cylindrical Multi-Hole Probe

Item No. 56120

Universal CO Multi-Hole Probe

Item No. 10123

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Diagnosis made easy!

Read-Out Head For Firing Automats: ecom-AK!

With a little help straight to the target – failure diagnosis with the ecom-AK turns into an easy job.

Any experienced heating service engineer knows this phenomenon: just right in the heating period a customer burner fails again and again – the cause is unknown. Often the possible cause suspected first is not the matching one. Sometimes several checks at the plant as well as the involvement of the manufacturer customer service assistance are necessary to finally get the plant back to proper function.

On the other side a small instrument is able to:
- show the operation stand of a burner
- measure the flame signal and to compare it with the minimal value
- check if the flame spontaneously flares up or with some delay
- display current as well as previous trouble sources
- determine the number of burner starts
- reproduce all relevant monitoring times (safety time, etc.)

The read-out head ecom-AK offers all these diagnosis possibilities for all current digital firing automats (Honeywell-Satronic DKG, DKO, DKW, DMO, DMG, DLG, DVI, DIO and SK as well as Siemens-Landis & Staefa LMG, LMO) and -thanks to the integral display- can be operated alone or (then with further functions) in combination with an ecom-EN2 resp. ecom-J2KN / J2KNpro flue gas analyser.
The ecom-AK enables the targeted diagnosis of fault sources and their sustainable trouble-shooting. In the end – and especially during the cold season – a heating system should run permanently and this trouble-free.

ecom-AK – Read-out head for firing automats - with radio transfer -

For burner diagnosis/indication of the main monitoring times of the firing automat on its display as described above.
Additionally wireless data transfer to the flue gas analyser ecom-J2KN(pro) for graphical indication of the operation stands of the burner, documentation of error history as well as all important monitoring times of the firing automats.

Power supply: 2 accus type AA 1.2V or 2 one-way batteries type AA 1.5 V.
Power consumption: approx. 100 mA.
Storage temperature: -20°C to +50°C Operation temperature: -20°C to +50°C.
Dimensions: approx. 88 x 41 x 32 mm Weight: approx. 150 g (with batteries)
Delivered in protection bag with 2 one-way batteries

Item No. 6006000

ecom-AK – Read-out head for firing automats

For burner diagnosis/indication of the main monitoring times of the firing automat on its display as described above.
Additionally data transfer per wire to the flue gas analyser ecom-EN2(R) for graphical indication of the operation stands of the burner, documentation of error history as well as all important monitoring times of the firing automats.

Power supply: 2 accus type AA 1.2V or 2 one-way batteries type AA 1.5 V.
Power consumption: approx. 100 mA.
Storage temperature: -20°C to +50°C Operation temperature: -20°C to +50°C.
Dimensions: approx. 88 x 41 x 32 mm Weight: approx. 150 g (with batteries)
Delivered in protection bag with 2 one-way batteries

Item No. 6006010

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x = suitable o = optional - = unsuitable

	ecom-UNO-30	ecom-UNO-200	ecom-DP	ecom-DPK	ecom-DPH
Chimney draught measurement	x	-	o	o	x
Finest pressure measurement	x	-	-	-	x
Gas burner adjustment (flow, facility, idle and nozzle pressure)	-	x	x	x	-
Compression check	-	x	x	x	-
Loading test	-	-	o	x	-
Tightness check	-	-	o	x	-
Usability test	-	-	o	x	-
4 Pa Test	-	-	-	-	x
Flow measurement	-	-	-	-	x
Online data logging	-	-	x	x	-
2nd pressure sensor for parallel measurements	-	-	o	o	-

Pressure Measurement

Pressure is a parameter measured in many different applications. Starting with the chimney draught as well as the finest pressure determination, pressure measurement serves to adjust gas burners or check pressings. For all these applications as well as for the 4 Pa Test (see page 33), ecom-instruments offer suitable solutions.

Pipe test according to TRGI will also be achieved by pressure measurements, thus using the right „measuring equipment“:
The technical regulations for gas installations (TRGI) are binding and important for the concerned crafts.

According to TRGI gas pipes must be checked along the different stages of their installation. This also applies for renovation and maintenance of buildings:

During the building shell phase a **loading test** is performed. The gas pipes material strength and the stability of the connections are checked before plastering or coverage.
A 1000 hPa test pressure is then applied to the new installed pipes – without fittings and gas appliances, air or an inert gas serving hereby as test medium. The pressure should not drop during 10 minutes. The pressure meter must have a resolution of at least 0.1 hPa.
The **tightness check** is applied to test the tightness of the pipes and fittings without the gas appliances being installed. The pressure has to keep stable during 10 minutes testing time (depending on the facility volume) this by a test pressure of 150 hPa. Also in this application the pressure meter must have a minimum resolution of 0.1 hPa.

The final examination is performed with a visual check.

In „normal“ operation the **usability test** is done with the purpose of tracking down possible leakages. The gas loss in a pipe can be determined in litre per hour by the instrumentation. Besides -of course- absolute tightness conditions, a loss of less than one litre per hour is still within tolerance and the new installation will be certified an unrestricted usability qualification. Between one and five litres loss means a reduced usability capacity. Further operation is then allowed over a repair time limited to four weeks. Subsequently the full tightness must be verified applying the tightness check. At a loss of five litres or more, the gas pipe will be locked as unsuitable for usability.

For all tests in connection with the TRGI directives, the ecom pressure check kit (DPK) offers the suitable instrumentation including the necessary accessories.

Note:
Besides the products for the pressure test according to TRGI (loading test, tightness test, usability test) shown on the following pages, a fully packaged kit is available (also as upgrade) as option to the flue gas analysers ecom-EN2 (see page 12) and ecom-EN2-R (see page 14).

Item. No. 101394 (for ecom-EN2)
Item. No. 101468 (for ecom-EN2-R)

Pressure Measurement with the ecom-UNO

ecom-UNO-200 ± 200 hPa

Ranges:	±200 hPa	±2038 mmH2O	±2,9 psi	±150 mmHg
Resolution:	0,01 hPa	0,1 mmH2O	0,01 psi	0,01 mmHg
Overload:	300 hPa	3060 mmH2O	4,35 psi	225 mmHg
Accuracy:	approx. 1%			
Power consumption: 20 mA				

Differential pressure measurement in pocket size.
Measurement of gas flow pressure and chimney pressure
Automatic range switch
4 switchable units: hPa/mbar, mmH2O, mmHg, psi.
Integral magnet for fixation on metal surfaces.
Power supply: 2 current batteries type AA 1.5V (Mignon)
Power consumption: approx. 20 mA.
Storage temperature: -20°C to +70°C, operation temperature: 0°C to +40°C.
Dimensions: approx. 106 x 64 x 28 mm (H x W x D), Weight: approx. 150 g (with batteries)

Item. No. 6008012

ecom-UNO-30 ± 30 hPa

Technical data varying from Item. No. 6008000:

Ranges:	±30 hPa	±306 mmH2O	±0,43 psi	±22,5 mmHg
Resolution:				
up to 1 hPa:	0,001 hPa	0,1 mmH2O	0,001 psi	0,01 mmHg
1 bto10 hPa:	0,01 hPa			
>10 hPa:	0,1 hPa			
Ovrerload:	50 hPa	510 mmH2O	0,75 psi	37,5 mmHg
Accuracy:	approx. 1%			
Power consumption: 8 mA				

Item. No. 6008012

Accessories:

ecom-UNO-protection bag

Material / Colour Textile, black
Dimensions (H x W x D): approx. 160 x 120 x 45 mm
Weight: approx. 50 g

Item. No. 55802

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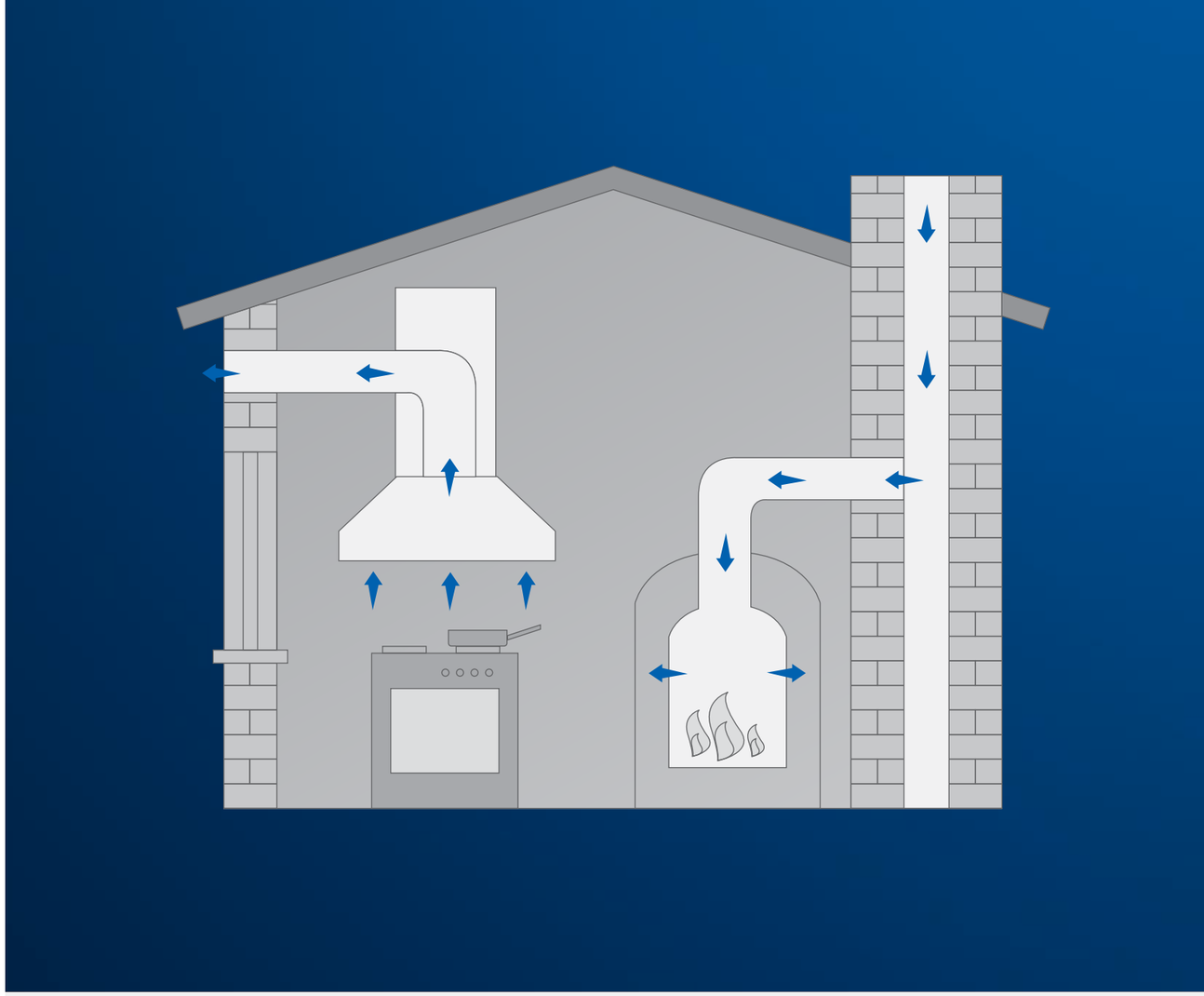
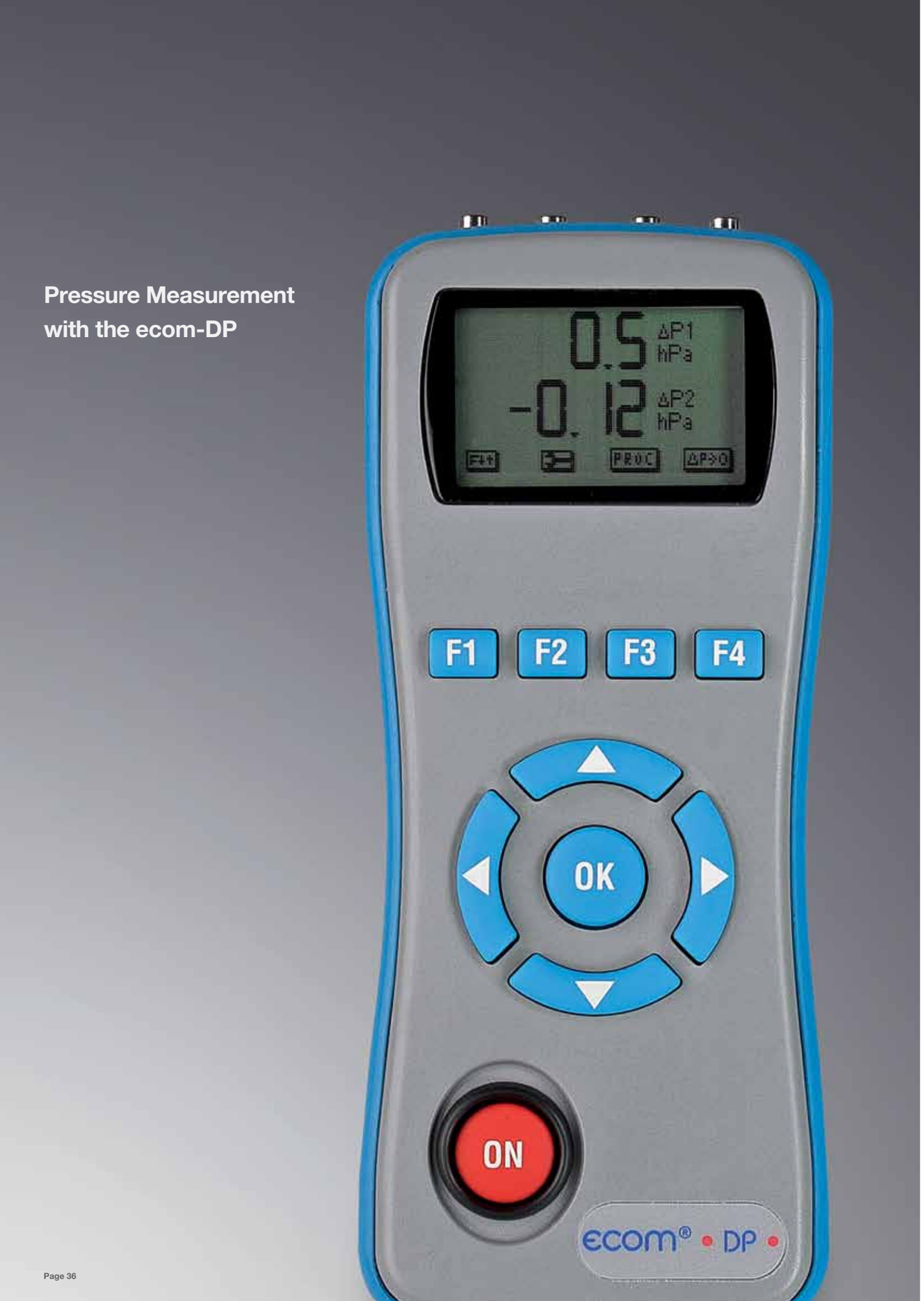


Differential Pressure Measurement: The 4 Pa Test

How to make sure that a laundry dryer or an extractor hood will not draw any fireplace exhaust into the habitation?

In a closed air circulation the simultaneous operation of a room-dependent fireplace and an air evacuation system can result in a dangerous low pressure.
A precise measuring instrument will enable to control the 4 Pa low pressure limit value, document the 5 minutes time curve and print the results as a diagram.
This simple check requires two capillary tubes which will record the pressure difference between the room in which the combustion takes place and the outside air.
One of them will be laid to the outside either through the window sealing, the door folding or respectively the keyhole to the stairway, the other remaining in the combustion room.
The pressure difference shall not exceed 4 Pa by operated fireplace and maximal sucking capacity.
This test can be performed with a flue gas analyser (ecom-EN2 with 4 Pa Test option) or alternatively as „stand-alone-solution“ (ecom-DPH).

Pressure Measurement with the ecom-DP



ecom-DP, with 1 sensor ± 0-1500 hPa

Resolution: 0.1 hPa, accuracy: ± 3% of measured value
Graphic display with window approx. 43 x 28 mm, resolution 128 x 64 Pixel
Power supply: 3 current batteries 1.5V AA (Mignon) or 3 accus 1.2V AA NiMh (metal hydride)
Accu charging and operation possible with current USB charger
2 PU connection tubings with quick-fitting couplings
Ambient temperature: 0°C to 50°C
Delivered with 3 batteries and operation manual
Dimensions: approx. 170 x 75 x 35 mm (H x W x D), Weight: approx. 300 g

Item No. 3140131

ecom-DP with two sensors ± 1500 hPa

Resolution: 0.1 hPa, accuracy: ± 3% of measured value
Graphic display with window approx. 43 x 28 mm, resolution 128 x 64 Pixel.
Power supply: 3 current batteries 1.5V AA (Mignon) or 3 accus 1.2V AA NiMh (metal hydride)
Accu charging and operation possible with current USB charger
2 PU connection tubings with quick-fitting couplings
Ambient temperature: 0°C to 50°C
Delivered with 3 batteries and operation manual
Dimensions: approx. 170 x 75 x 35 mm (H x W x D), Weight: approx. 300 g

Item No. 3140232

ecom-DP with each 1 sensor ± 70 hPa and ± 1500 hPa

Resolution: 0.1 hPa, accuracy: ± 3% of measured value
Graphic display with window approx. 43 x 28 mm, resolution 128 x 64 Pixel.
Power supply: 3 current batteries 1.5V AA (Mignon) or 3 accus 1.2V AA NiMh (metal hydride)
Accu charging and operation possible with current USB charger
2 PU connection tubings with quick-fitting couplings
Ambient temperature: 0°C to 50°C
Delivered with 3 batteries and operation manual
Dimensions: approx. 170 x 75 x 35 mm (H x W x D), Weight: approx. 300 g

Item No. 3140233

ecom-DPK/V3, Pressure Check Kit for all tests acc. to TRGI (see page 31) consisting of:

1 piece ecom-DP differential pressure instrument, range 0-1.5 bar
3 pieces connection hoses each 1.2 m long with quick-fitting
1 piece each conic test stopple 1/2“ - 3/4“ and 3/4“ - 1 1/4“
1 piece crosspiece with safety
1 piece compressed-air pump for build-up of test pressure in pipe
1 piece one-pipe counter cap with swivel nut R2“ and quick fittings
1 piece each high-pressure test stopple 3/8“ to 1/2“ and 3/8“ to 3/4“ with quick-fittings
Delivered in robust plastics transport case
Dimensions case: approx. 530 x 400 x 120 mm (L x W x H), Weight: approx. 4.5 kg

Item No. 3140121

Note: The ecom-DP can be turned into a pressure check kit while completing with the needed accessories and the storage transport case. Rounding-up with an ecom-LSG, gas leak detector would be just perfect to track possible leakages while performing the usability check.

Infrared Thermal Printer

IR thermal printer ecom-P. For the documentation of the measured values.

Item No. 3140300

ecom-DPH for the 4 Pa Test

ecom-DPH Set for the Heating Check acc. to DIN EN 15378

ecom-DPH Measuring Instrument

Measured values: temperature (-50... 300°C), differential pressure (± 10 hPa)
Calculated value: air speed (0,15 m/s... 40 m/s), ventilation and surface losses
Graphic-capable display with window ≈ 43 x 28 mm, resolution 128 x 64 Pixel, backlit
Power supply: 3 current batteries 1.5V (Mignon) or 3 accumulators 1.2V AA NiCd (nickel-cadmium) or 3 accumulators 1.2V AA NiMh (metal-hydride)
Accumulator charging and instrument operation possible via current USB charger
Dimensions: approx. 170 x 75 x 35 mm (L x B x H) Weight: approx. 300 g

Probe for ventilation losses measurement:
Length approx. 250 mm, probe pipe made out of special steel,
with cable 2,6 m and fixation cone

Probe for Surface Losses:
With thermocouple strip, length approx. 210 mm (incl. grip), Ø approx. 16 mm.
With cable approx. 1 m (angled probe for hardly accessible measurement points, optional) Magnet fixation for surface losses probe, straight style

Set delivered in robust **transport case** made out of plastics:
Dimensions: approx. 390 x 345 x 90 mm (L x W x H) Weight: approx. 1,8 kg

Item No. 3140400

ecom-DPH Set for the 4 Pa Test

ecom-DPH Measuring Instrument

Graphic-capable display with window approx. 43 x 28 mm, resolution 128 x 64 Pixel, backlit
Power supply: 3 current batteries 1.5V (Mignon) or 3 accumulators 1.2V AA NiCd (nickel-cadmium) or 3 accumulators 1.2V AA NiMh (metal-hydride)
Accumulator charging and instrument operation possible via current USB charger
Dimensions: approx. 170 x 75 x 35 mm (L x B x H) Weight: approx. 300 g
Delivered with 3 batteries, manual and calibration certificate

2 capillary hoses, length approx. 3 m, made out of plastics

With robust **transport case** made out of plastics
Dimensions (L x B x H): approx. 390 x 345 x 90 mm Weight: approx. 1,0 kg

Item No.100735

Note: The ecom-DPH for 4 Pa Test is also available alone (item no. 100734) without transport case. Users of an ecom-CN handheld flue gas analyser with aluminum-framed transport case will easily store their ecom-DPH in the case and be able to sue the optional infrared printer for both instruments.

Find further hints about Heating Check and 4 Pa Test respectively on page16 / 35.

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ecom®

ecom-DPH for the Heating Check

ecom-DPH Set for the Heating Check and 4 Pa Test

ecom-DPH Measuring Instrument

Measured values: temperature (-50... 300°C), differential pressure (± 10 hPa)
Calculated value: air speed (0,15 m/s... 40 m/s), ventilation and surface losses
Graphic-capable display with window ≈ 43 x 28 mm, resolution 128 x 64 Pixel, backlit
Power supply: 3 current batteries 1.5V (Mignon) or 3 accumulators 1.2V AA NiCd (nickel-cadmium) or 3 accumulators 1.2V AA NiMh (metal-hydride)
Accumulator charging and instrument operation possible via current USB charger
Dimensions: approx. 170 x 75 x 35 mm (L x B x H) Weigh:t approx. 300 g

Probe for ventilation losses measurement:
Length approx. 250 mm, probe pipe made out of special steel,
with cable 2,6 m and fixation cone

Probe for Surface Losses:
with thermocouple strip, length approx. 210 mm (incl. grip), Ø ≈ 16 mm.
With cable approx. 1 m (angled probe for hardly accessible measurement points, optional) magnet fixation for surface losses probe, straight style

2 capillary hoses, length approx. 3 m, made out of plastics
Set delivered in robust **transport case** made out of plastics
Dimensions: approx. 390 x 345 x 90 mm (L x W x H) Weight: approx. 1,9 kg

Item No. 3140401

Accessories for ecom-DPH Meters:

Infrared thermal Printer

IR thermal printer ecom-P. For the documentation of the measured values.

Further accessories like charger, accumulators or an angled surface probe are also available.

Item No. 3140300

Find further hints about Heating Check and 4 Pa Test respectively on page16 / 35.

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Gas Detection:

For timely identification of potential danger as well as tracking of leakage sources.

ecom-UNO – for carbon monoxide detection (CO) in ambient air

Measurement range: 0-1000 ppm
Resolution: 1 ppm
Accuracy: approx. 2%
Signal threshold values: 50, 100, 200, 300 and 500 ppm
Power supply: 2 current batteries type AA 1.5V (Mignon)
Power consumption: approx. 6 mA
Storage temperature: -20°C to +70°C, operation temperature: 0°C to +40°C
Dimensions: ± 106 x 64 x 28 mm (H x W x D), Weight: ± 150 g (with batteries)

Item. No. 6008001

Accessories:

ecom-UNO-protection bag

Material & colour: textile, black
Dimensions (H x W x D): approx. 160 x 120 x 45 mm
Weight: approx. 50 g

Item. No. 55802

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ecom-LSG Gas Leak Detector for flammable gases

With bar indication
Indication range: up to 0.5% CH4
Reaction time: < 2 seconds
Indication: bar diagram, backlit display, size approx. 20 x 7 mm
1 -14 bars (10 bars approx. 1000 ppm CH4)
Power supply: 2 one-way batteries micro (AAA) or 2 accus micro (AAA)
Battery autonomy > 8 hours
Warm-up time: approx. 3 minutes
Operation temperature: -5°C to +40°C
Dimensions: - Housing approx. 155 x 35 x 22 mm - Flex arm L: approx. 355 mm
Weight: approx. 200 g
Delivered with 2 one-way batteries, testing bottle, protection sleeve and manual

Item No. 100286

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ecom-LSK Leak Detector for Refrigerating Coolants

With bar indication
Indication range: up to 0.5% R 134a
Reaction time: < 2 seconds
Indication: bar diagram, backlit display, size approx. 20 x 7 mm
1 -14 bars (10 bars approx. 1000 ppm R 134a)
Power supply: 2 one-way batteries micro (AAA) or 2 accus micro (AAA)
Battery autonomy > 8 hours
Warm-up time: approx. 3 minutes
Operation temperature: -5°C to +40°C
Dimensions: - Housing approx. 155 x 35 x 22 mm - Flex arm L: approx. 355 mm
Weight: approx. 200 g
Delivered with 2 one-way batteries, testing bottle, protection sleeve and manual

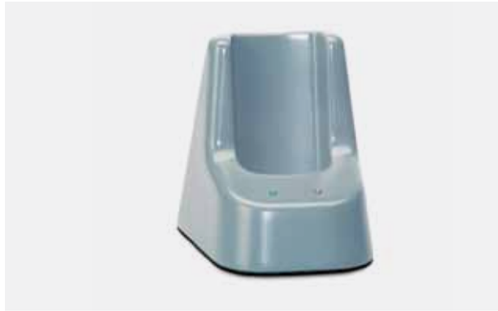
Item No. 100287

Accessories for ecom-LSG resp. ecom-LSK:

Textile protection bag

With zipper, small inner compartment for testing bottle and spare batteries or accumulators, suspension loop on top and belt loop on the back.

Item No. 100544



Accu charger

Power supply via included loading unit
For accus type 1.2V AAA NiCd or 1.2V AAA NiMh
Delivered with 2 accus NiMh
Dimensions: approx. 70 x 70 x 80 mm (L x B x H) Weight: approx. 0.4 kg

Item No. 6005004

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Infrared Temperature Measurement

An infrared thermometer can be the first step into infrared temperature measurement. This thermometer detects the temperature on the surface of e.g. a wall, a tube or else via a point measurement.

A thermal imaging camera operates according to the same principle excepted that not a single point is measured but numerous ones, side by side and on top of each other. These measurements merge then into a thermal image. There are various application opportunities for thermal imaging cameras in the energy consultancy and sanitary-heating business: floor heating leakages can be detected, the difference between feed and return line of heating installations can be identified without big efforts, concealed pipe networks can be easily detected and warm and cold water pipes can be easily differentiated by distance. Infrared thermal cameras additionally offer some nice extras: thermal bridges are highlighted and some models even have a dew point alarm.

The fairly most important aspect is: working with a thermal camera saves time, money and makes fun.
Besides practical operating functions, thermal cameras make the difference with the resolution they offer and above all with their design. Doubting fellows should have a look through. Thermal cameras offer quality and a wide production range. And particularly appreciable: they became financially affordable in recent years.

Easy evaluation and reporting (via free Reporter software) should be part of the selection criteria when considering to acquire a camera but also the capability to generate e.g. JPEG files out of the pictures shot which can be then managed and sent as picture files.

ecom-Scantemp 440

Infrared thermometer with thermocouple port and laser
IR temperature measurement instrument with port for thermocouple probe NiCr-Ni (type K)
Large display for simultaneous view of measurement value as well as max/min or limits.
With pointer and back light
Large temperature range:
Infrared: -33…+500 °C, Thermocouple port: -64…+1370 °C
HOLD-, MAX-, MIN-, DIF-, AVG-function, adjustable emission level
Acoustical and optical limit alarm (HI-LOW)
Dimensions (H x W x D): approx. 175 x 40 x 80 mm, Weight: approx. 180 g (with batteries)

Item No.7005010

The following pages list small and compact thermal imaging cameras best suitable for applications in the sanitary-heating field.
Additionally, top-range cameras models (with different lenses, higher resolutions etc.) are available upon request.
It would be our pleasure to provide with information and demonstration.

The reasonable access to the world of thermal imaging…

FLIR i-Series – General Specifications (i3, i5, i7):

Imaging - Performance and Presentation
Spectral range: 7,5 –13 µm
Spatial resolution (IFOV): 3,71 mRad
Image frequency: 9 Hz
Focus: Fixed
Focal Plane Array (FPA): Uncooled Microbolometer
Display: 2,8“ color LCD

Measurement Analysis:
Object temperature range: -20 °C to +250 °C
Accurancy: ± 2 °C or ± 2 % of reading
Emmissivity correction: Variable from 0.1 to 1.0 or selected from list of materials
Reflected apparent temperature correction: Automatic, based on input of reflected temperature
Color palettes: Iron, Rainbow and Black/White

Data Processing
Image Storage: On miniSD-Card as standard JPEG measurement data inluded – image-evaluation-software

Dimensions/Weight
Dimensions: 223 x 79 x 83 mm (in the case 400 x 320 x 120 mm)
Weight: < 340 g incl. batteries (in the case approx. 2,8 kg - accessories incl.)

FLIR i3 Thermal Imaging Camera

IR-Solution: 60 x 60 Pixel
Field of view/min focus distance: 12,5 °(H) x 12,5 °(V) / 0,6 m
Measurement modes: Center spot
Thermal sensitivity (N.E.T.D): 0,15 °C

Item No. 101395

FLIR i5 Thermal Imaging Camera

IR-Solution: 80 x 80 Pixel
Field of view/min focus distance: 17 °(H) x 17 °(V) / 0,6 m
Measurement modes: Center spot
Thermal sensitivity (N.E.T.D): 0,10 °C

Item No.. 101194

FLIR i7 Thermal Imaging Camera

IR-Solution: 120 x 120 Pixel
Field of view/min focus distance: 25 °(H) x 25 °(V) / 0,6 m
Measurement modes: Center spot, box with max./min. temp., isotherms above/below selected temperature interval
Thermal sensitivity (N.E.T.D): 0,10 °C

Item No.. 101190

Standard package: FLIR i3, FLIR i5 or FLIR i7 thermal imaging camera, Hard transport case, FLIR QuickReport CD, Printed Getting Started Guide, User documentation CD-ROM, Calibration certificate, Hand strap, Battery (inside camera), Power supply/charger with EU, UK, US and Australian plugs, USB cable, miniSD card (512 MB), with SD card adaptor

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Light regarding the Weight – heavy according to the benefit: The Ebx-Series made for building diagnostics

FLIR Ebx-Series – General Specifications (E30bx, E40bx, E50bx, E60bx):

maging - Performance and Presentation
Field of view/min focus distance: 25 ° x 19 ° / 0,4 m
Spectral range: 7,5 –13 µm
Image frequency: 60 Hz
Focus: Manual
Focal Plane Array (FPA): Uncooled Microbolometer
Display: 3,5“ Touch-Screen (320 x 240 pixels)
Image modes: IR image, digital image, thumbnail gallery

Measurement and Analysis
Object temperature range: -20 °C to +120 °C
Accurancy:: ± 2 °C or ± 2 % of reading
Automatic hot/cold detection : Auto hot or cold spotmeter markers within area
Emmissivity correction: Variable from 0.1 to 1.0 or selected from list of materials
Reflected apparent temperature correction: Reflected temperature, optics transmission and atmospheric transmission
Alarm functions: humidity alarm including dew point alarm and insulation alarm
Isotherm: Detect high/low temperature/interval
Color palettes: Palettes (Arctic, Gray, Iron, Lava, Rainbow and Rainbow HC), image adjustment (auto/manual)

Data Processing
Image storage: On SD-Card as standard JPEG measurement data inluded – image-evaluation-software
Interfaces: USB-Mini, USB-A, composite video (connection of external USB-devices, data transefer to/from PC/Streaming MPEG4)

Dimensions/Weight
Dimensions: 246 x 97 x 184 mm (in the case 560 x 370 x 190 mm)
Weight: 0,825 kg incl. batteries (in the case approx. 5,3 kg- accessories incl.)

Standard package: FLIR E30bx, FLIR E40bx, FLIR E50bx or FLIR E60bx, Hard transport case, Thermal imaging camera with lens, Battery, Hand strap, Calibration certificate, FLIR Tools software CD-ROM, Memory card, Lens cap, Power supply incl. multiplugs, Printed Getting Started Guide, Printed Important Information Guide, USB cable, User documentation CD-ROM, Video cable, Warranty extension card or Registration card

FLIR E30bx Thermal Imaging Camera

IR-Solution: 160 x 120 pixel
Spatial resolution (IFOV): 2,72 mRad
Thermal sensitivity (N.E.T.D): <0,1 °C
Spotmeter: 1
Area: 1 box with min./max./average
Image storage: IR-image

Item No.101396

FLIR E40bx Thermal Imaging Camera

IR-Solution: 160 x 120 pixel
Spatial resolution (IFOV): 2,72 mRad
Thermal sensitivity (N.E.T.D): <0,045 °C
Zoom: 1-2 x continuous digital zoom
Picture in Picture: IR area on visual image
Spotmeter: 3
Area: 3 boxes with min./max./average
Difference temperature: Delta temperature between measurement functions or reference temperature
Built-in digital camera, 3.1 Mpixels, and one LED light
IR/visual images, simultaneous storage of visual and IR images
Bluetooth/WiFi-interface

Item No.101397

FLIR E50bx Thermal Imaging Camera

IR-Solution: 240 x 180 pixel
Spatial resolution (IFOV): 1,82 mRad
Thermal sensitivity (N.E.T.D): <0,045 °C
Zoom: 1-4 x continuous digital zoom
Picture in Picture: Scalable IR area on visual image (Thermal Fusion)
Spotmeter: 3
Area: 3 boxes with min./max./average
Difference temperature: Delta temperature between measurement functions or reference temperature
Built-in digital camera, 3.1 Mpixels, and one LED light
IR/visual images, simultaneous storage of visual and IR images
Bluetooth/WiFi-interface

Item No. 101398

FLIR E60bx Thermal Imaging Camera

IR-Solution: 320 x 240 pixel
Spatial resolution (IFOV): 1,36 mRad
Thermal sensitivity (N.E.T.D): <0,045 °C
Zoom: 1-4 x continuous digital zoom
Picture in Picture: Scalable IR area on visual image (Thermal Fusion)
Spotmeter: 3
Instant report
Area: 3 boxes with min./max./average
Difference temperature: Delta temperature between measurement functions or reference temperature
Built-in digital camera, 3.1 Mpixels, and one LED light
IR/visual images, simultaneous storage of visual and IR images
Bluetooth/WiFi-interface

Item No. 101399

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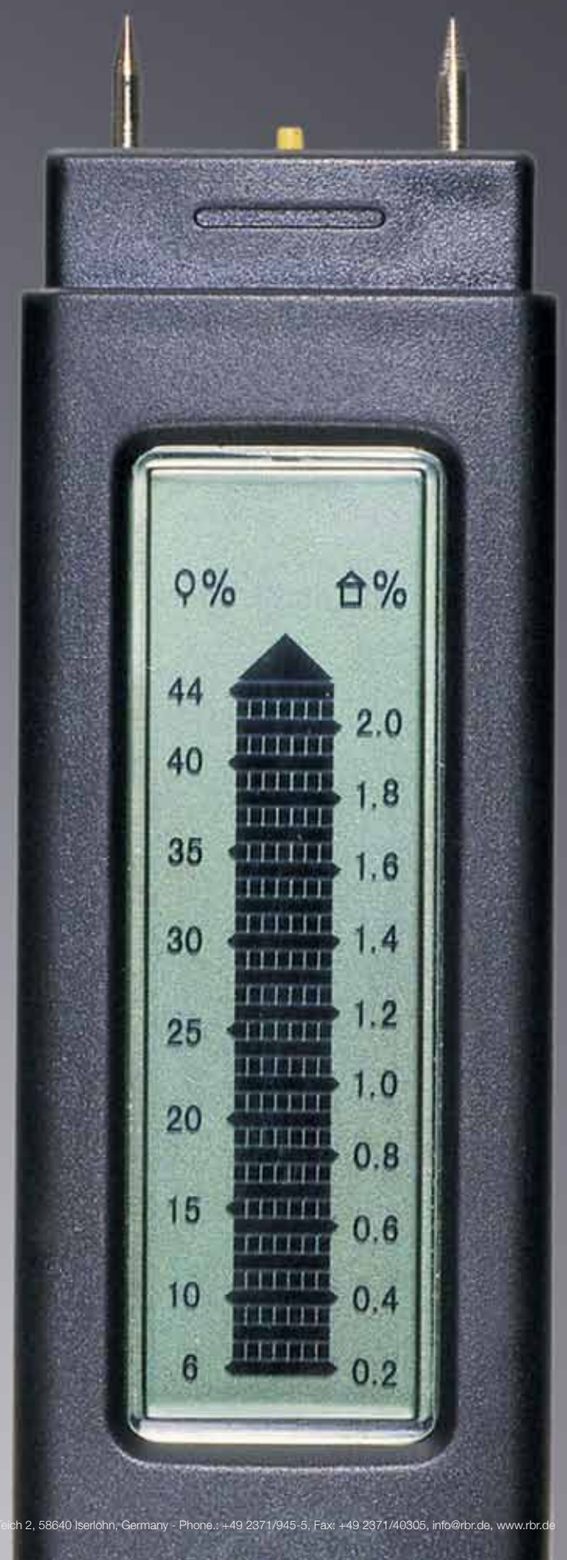
Humidity and Interior Climate Measurement



ecom-Humidcheck

Humidity meter for wood/plaster
Principle: Electrical resistance
Electrode length: 8 mm
Electrodes: integrated, replaceable
Measuring range: Wood: 6 – 44 % Material: 0.2 – 2.0 %
Accuracy: wood: ±1 %, material: ±0.05 %
Auto power OFF after approx. 15 minutes
Battery: 3 × Cr 2032, replaceable
Housing material: Impact-proof plastic housing
Ambient temperature: 0 - 40°C
Ambient relative humidity: 0 – 85 %rH
Dimensions: approx. 130 × 40 × 21 mm, Weight: approx. 130 g

Item No. 7005000

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ecom-Hydrocheck B

Electronic indicator for building humidity
Patented measurement principle acc. to the dielectric constant / high frequency measurement principle.
With LCD digital indication and flexible operating ball sensor for non-destructive humidity detection in building material every kind as well as for recognition of humidity distribution in walls, ceilings and floors.
Full automatic calibration
Power supply: 9V block battery or Ni-Cd accumulator
Dimensions: approx. 200 x 35 x 35 mm, Weight: approx. 190 g
Delivered with protection bag

Item No. 7005001

ecom-TFS Energy Advisor Kit consisting of :

Temperature/Humidity measuring instrument H 560
Range: -40°C to +70°C, 0 to 99% rF
Measurement accuracy: ± 0,5°C, ± 3% (20 to 90%)
Dimensions: approx. 170 x 50 x 17 mm Weight: approx. 100 g

Material humidity measuring instrument Humidcheck
Range: Building: 0.2 bis 2% / Wood: 6 to 44%
Measurement accuracy: Building: ± 0.05% / Wood: ± 1%
Dimensions: approx. 130 x 40 21 mm Weight: approx. 100 g

Laser infrared thermometer Scantemp 440
Measuring range: -33°C to +500°C
Measurement accuracy: ± 2% / ± 2°C (higher value prevails)
Dimensions: approx. 175 x 39 x 80 mm Weight approx. 180 g

Sound level meter SL 328
Range: 32 to 130 dB
Measurement accuracy: ± 1.4 dB
Dimensions: approx. 206 x 42 x 25 mm Weight: approx. 100 g

Dimensions transport case: approx. 330 x 270 x 80 mm (Lx W x H)
Weight, complete: approx. 1.2 kg

Item No. 7005024

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Distance Measurement

Leica Disto D2
Distance meter

Minimum- and maximum measurement Addition / Subtraction
Surface and volume measurement

Surface and volume measurement
Indirect measurement via Pythagoras
Recall of last 10 measurements
Automatic release function
Display backlit

Power supply: Batteries: 2 x 1,5 V AAA
(up to 5000 measurements per set of batteries)
Range: 0.05 m to 60 m
Indication: 0,001 m
Accuracy: ± 1,5 mm
Dimensions: approx. 111 x 42 x 23 mm (L x W x H)
Protective system: IP54
Weight: approx. 90 g

Item No. 7005022

Leica Disto D3
Distance meter

Minimum- and maximum measurement Addition / Subtraction
Surface and volume measurement

Geometrical calculations
Indirect measurement via Pythagoras
Indirect measurement via inclination sensor
Recall of the last 20 measurements
Automatic release function, Display backlit

Power supply: Batteries: 2 x 1,5 V AAA
(up to 5000 measurements per set of batteries)
Range: 0.05 m to 100 m, ± 45°
Indication: 0,001 m, 0.1°
Accuracy: ± 1,0 mm, ± 0,3°
Protective system: IP54
Dimensions: approx. 125 x 45 x 24 mm (L x W x H)
Weight: approx. 110 g

Item No.. 7005023

products 03/2011 - Rev. 2 - BD 100/500

There are various opportunities to get into contact with us…

…please refer to your local distributor (to be found at **www.rbr.de**).

…please feel free to contact us at **export@rbr.de** so that we will find the most appropriate way to serve you.

…please contact us at any time, if you intend to become a distributor yourself in a country where rbr is not represented yet.

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