GB

KERN®

MOISTURE ANALYSERS



175
KERN & SOHN
Balance manufacture in the Sauter family-owned company
250

2019

KERN Pictograms

Internal adjusting:
Quick setting up of the balance's accuracy with internal adjusting weight (motordriven)

Adjusting program CAL:
For quick setting up of the balance's accuracy. External adjusting weight required

Easy Touch:
Suitable for the connection, data transmission and control through PC, tablet or smartphone

Memory:
Balance memory capacity, e.g. for article data, weighing data, tare weights, PLU etc.

Alibi memory:
Secure, electronic archiving of weighing results, complying with the 2014/31/EU standard. For details see page 206

Data interface RS-232:
To connect the balance to a printer, PC or network

RS-485 data interface:
To connect the balance to a printer, PC or other peripherals. Suitable for data transfer over large distances. Network in bus topology is possible

USB data interface:
To connect the balance to a printer, PC or other peripherals

Bluetooth* data interface:
To transfer data from the balance to a printer, PC or other peripherals

WLAN data interface:
To transfer data from the balance to a printer, PC or other peripherals

Control outputs (optocoupler, digital I/O):
To connect relays, signal lamps, valves, etc.

Analogue interface:
to connect a suitable peripheral device for analogue processing of the measurements

Interface for second balance:
For direct connection of a second balance

Network interface:
For connecting the scale to an Ethernet network

Wireless data transfer:
between the weighing unit and the evaluation unit using an integrated radio module

KERN Communication Protocol (KCP):
It is a standardized interface command set for KERN balances and other instruments, which allows retrieving and controlling all relevant parameters and functions of the device. KERN devices featuring KCP are thus easily integrated with computers, industrial controllers and other digital systems

GLP/ISO log:
The balance displays serial number, user ID, weight, date and time, regardless of a printer connection

GLP/ISO log:
With weight, date and time. Only with KERN printers, see page 161/162

Piece counting:
Reference quantities selectable. Display can be switched from piece to weight

Recipe level A:
The weights of the recipe ingredients can be added together and the total weight of the recipe can be printed out

Recipe level B:
Internal memory for complete recipes with name and target value of the recipe ingredients. User guidance through display

Recipe level C:
Internal memory for complete recipes with name and target value of the recipe ingredients. User guidance through display, multiplier function, adjustment of recipe when dosages are exceeded or barcode recognition

Totalising level A:
The weights of similar items can be added together and the total can be printed out

Percentage determination:
Determining the deviation in % from the target value (100 %)

Weighing units:
Can be switched to e.g. nonmetric units at the touch of a key. See balance model. Please refer to KERN's website for more details

Weighing with tolerance range:
(Checkweighing) Upper and lower limiting can be programmed individually, e.g. for sorting and dosing. The process is supported by an audible or visual signal, see the relevant model

Hold function:
(Animal weighing program) When the weighing conditions are unstable, a stable weight is calculated as an average value

Protection against dust and water splashes IPxx:
The type of protection is shown in the pictogram. For details see page 70

Stainless steel:
The balance is protected against corrosion

Suspended weighing:
Load support with hook on the underside of the balance

Battery operation:
Ready for battery operation. The battery type is specified for each device

Rechargeable battery pack:
Rechargeable set

Universal mains adapter:
with universal input and optional input socket adapters for
A) EU, CH
B) EU, CH, GB, USA
C) EU, CH, GB, USA, AUS

Mains adapter:
230V/50Hz in standard version for EU. On request GB, USA or AUS version available

Power supply:
Integrated in balance. 230V/50Hz standard EU. More standards e.g. GB, USA or AUS on request

Weighing principle: Strain gauges
Electrical resistor on an elastic deforming body

Weighing principle: Tuning fork
A resonating body is electromagnetically excited, causing it to oscillate

Weighing principle: Electromagnetic force compensation
Coil inside a permanent magnet. For the most accurate weighings

Weighing principle: Single cell technology:
Advanced version of the force compensation principle with the highest level of precision

Verification possible:
The time required for verification is specified in the pictogram

DAkkS calibration possible (DKD):
The time required for DAkkS calibration is shown in days in the pictogram

Package shipment:
The time required for internal shipping preparations is shown in days in the pictogram

Pallet shipment:
The time required for internal shipping preparations is shown in days in the pictogram

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Moisture analysers

Moisture analysing is an integral part of production and processing of many raw and finished products and has a crucial impact on the quality of the product.

Moisture analysers are used particularly in the food industry, water resource management (sewage plants, etc.), plastics industry, agriculture and the energy industry (bio-energy plants, etc.).

Determining moisture requires a great deal of experience. Depending on the type of sample and the task involved, various drying processes are used.

KERN has concentrated on the most widely-used drying method: halogen drying, which brings many advantages:

- Sample is evenly warmed from above, without risk of burning the sample surface
- Affordable purchase costs ensure rapid amortisation of the device
- Most common temperature ranges from 35 – 200 °C
- High measuring precision, up to 0.01 %
- Sufficient buffer capacity, weighing capacity up to 200 g
- Various drying programs (soft drying, standard drying, drying in levels, rapid drying (Boost))

The numerous memories of the KERN moisture analyser are particularly useful, as they hold information on the complete drying processes with drying parameters such as drying time, drying period, drying temperature, display settings, switch off criteria, etc. This saves an enormous amount of time and helps to achieve repeatable results.

On the internet, you will find a practical application handbook containing many examples, field reports, settings and tips for each KERN moisture analyser.

Determination of drying parameters
We would be pleased to carry out individual analyses on the sample you submit, which will help you when setting the parameters of your moisture analyser and will lead to results which can be reproduced. KERN 965-243, **€ 95,-/hour**

Temperature calibration by KERN moisture analyzers (factory calibration certificate)
In order to guarantee the comparability of the results of moisture analyses it is crucial that the heating chamber and therefore the sample are maintained at the correct temperature. Over time, for example, deposits or dirt can contaminate the heating chamber of the moisture analyser and this can distort the measuring results. It is therefore necessary to carry out regular temperature calibration. KERN 964-305, **€ 140,-**

Quick-Finder Moisture analysers

Readability [d] g	Weighing capacity [Max] g	Model KERN	Price excl. of VAT ex works €	Page	DAYS	CAL EXT	MEMORY	RS 232
					For an explanation on the pictos, see front flap			
0,001	60	**DBS 60-3**	**1270,-**	55	1	●	○	○
0,001	110	**DAB 100-3**	**1050,-**	54	1	●	○	○
0,001	160	**DLB 160-3A**	**1170,-**	56	1	●	○	○
0,01	200	**DAB 200-2**	**930,-**	54	1	●	○	○

☐ News 2019

● = standard ○ = option

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HIGHLIGHT

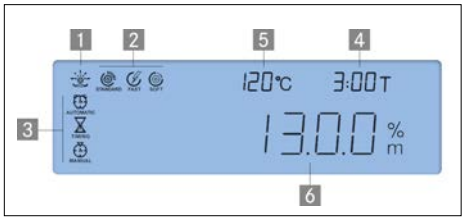


from €
930,-

- **Powerful halogenquartz glass heater 400 W, alternatively also available with infrared quartz glass heater**
- **High level of process reliability thanks to drying programs which can be stored**
- **Now also available as 10 mg version for quick tests and sampling tests**

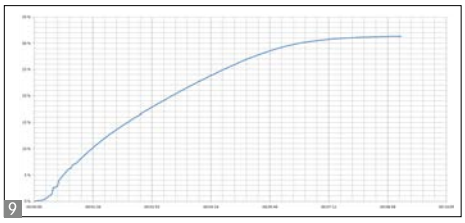
KERN DAB **Page 54**











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Moisture analyser which is particularly easy to use – now also as a version with [d] = 10 mg, ideal for recurring rapid tests

Features

- **NEW:** KERN DAB 200-2! Version with lower resolution, whereby the switch-off criterion is reached faster, which saves time. Ideal for quick tests and spot checks
- Backlit graphic display, digit height 14 mm
  - 1 Drying process active
  - 2 Active heating profile
  - 3 Active switch-off criteria
  - 4 Previous drying time
  - 5 Current temperature
  - 6 Current moisture content in %
- **Halogen quartz glass heater** 400 W
- **Observation window above the sample,** useful during initial setting
- **Internal memory** for automatic sequence of 15 complete drying processes and 5 drying processes carried out
- The last value measured remains on the display until it is replaced by a new measurement
- **50 sample plates included**
- **Application handbook:** On the internet, you will find a practical application handbook containing many examples, field reports, settings and tips for each KERN moisture analyser

STANDARD: CAL EXT, MEMORY, RS 232, PRINTER, UNIT, 230 V, DMS, 1 DAY

OPTION: DAkkS +3 DAYS

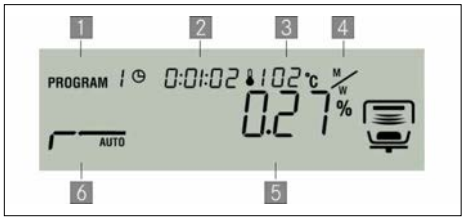
Model KERN	DAB 200-2 NEW	DAB 100-3
Readability [d]	0,01 g/0,05 %	0,001 g/0,01 %
Weighing capacity [Max]	200 g	110 g
Reproducibility weight of sample 2 g	1,5 %	0,15 %
Reproducibility, weight of sample 10 g	0,3 %	0,02 %
Display after drying (Display can be switched over at any time)		
Moisture [%] = Moisture content (M) from wet weight (W)	0-100 %	
Dry content [%] = Dry weight (D) from W	100-0 %	
Moisture content (M)	Absolute value in [g]	
Temperature range	40 °C–199 °C in steps up to 1 °C	
Drying modes	Standard drying Gentle drying Rapid drying	
Switch-off criteria	• Automatic switch-off (2 mg loss in weight in 45 s) • Time controlled switch-off (3 min – 99 min 59 s, 10 s increments) • Manual switch-off at the press of a button	
Recall of measurement/ Log output	Interval can be set from 1 s – 10 min (Only when used with printer KERN YKB-01N or PC)	
Overall dimensions W×D×H	240×365×180 mm	
Net weight	4,82 kg	
Price €, excl. of VAT, ex works	**930,-**	**1050,-**
Option DAkkS Calibr. Certificate	Mass: KERN 963-127, € 72,-	
Option Factory Calibr. Certificate	Temperature: KERN 964-305, € 140,-	

NEW New model

Accessories

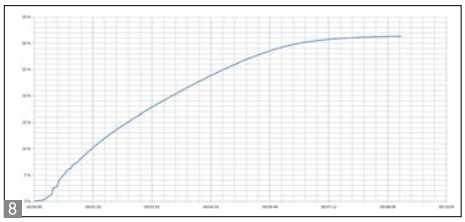
- **Sample plates aluminium,** ø 90 mm, unit of 80 pieces, KERN MLB-A01A, **€ 45,-**
- **Round fiberglass filter** high mechanical stability, with organic binder, box of 100 pieces, KERN RH-A02, **€ 80,-**
- **Round fiberglass filter,** medium mechanical stability, without organic binder, box of 100 pieces, KERN YMF-A01, **€ 25,-**
- 7 **Temperature calibration set** consists of measuring sensor and display device, KERN DAB-A01., **€ 110,-**
- 8 **Infrared quartz glass heater,** temperature range 40 °C-160 °C, Factory Option, KERN DAB-A02, **€ 95,-**
- **RS-232/Ethernet adapter** for connection to an IP-based Ethernet network, KERN YKI-01, **€ 290,-**
- **RS-232/Bluetooth adapter** to connect to Bluetooth capable devices, such as Bluetooth printers, tablets, laptops, smartphones, etc.,KERN YKI-02, **€ 220,-**
- **RS-232/WiFi adapter** for wireless connection to networks and WLAN capable devices, such as tablets, laptops or smartphones, KERN YKI-03, **€ 690,-**
- 9 Display of the drying process in conjunction with BalanceConnection, KERN SCD-4.0, **€ 150,-**
- **Thermal printer,** KERN YKB-01N, **€ 320,-**











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Moisture analyser with graphics display and 10 memories for drying programs

Features

- Backlit graphic display, digit height 15 mm
  - 1 Drying process active
  - 2 Previous drying time
  - 3 Current temperature
  - 4 Unit for displaying the results
  - 5 Current moisture content in %
  - 6 Active heating profile
- **Halogen quartz glass heater** 400 W
- **Observation window above the sample,** useful during initial setting
- **Internal memory** for automatic sequence of 10 complete drying processes and 100 drying processes carried out
- The last value measured remains on the display until it is replaced by a new measurement
- **Sample description** for up to 99 samples, 2 digits, freely programmable, and is printed in the measuring protocol
- **Date and time display** as standard
- **10 sample plates included**
- **Protective working cover** included with delivery
- **Application handbook:** On the internet, you will find a practical application handbook containing many examples, field reports, settings and tips for each KERN moisture analyser

STANDARD

CAL EXT | MEMORY | RS 232 | PRINTER | UNIT | 230 V | FORCE | 1 DAY

OPTION

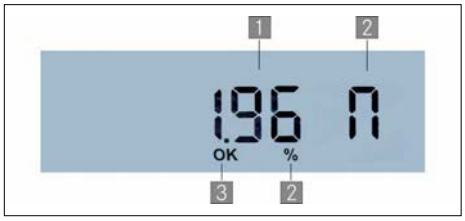
USB | DAkkS +3 DAYS

Modell KERN	DBS 60-3
Readability [d]	0,001 g/0,01 %
Weighing capacity [Max]	60 g
Reproducibility weight of sample 2 g	0,15 %
Reproducibility, weight of sample 10 g	0,02 %
Display after drying	
Moisture [%] = Moisture content (M) from wet weight (W)	0–100 %
Dry content [%] = Dry weight (D) from W	100–0 %
ATRO [%] [(W-D) : D] · 100%	0–999 %
Moisture content (M)	Absolute value in [g]
Temperature range	50 °C–200 °C in steps up to 1 °C
Drying modes	Standard drying Drying in levels Gentle drying Rapid drying
Switch-off criteria	• Automatic unrestricted switch-off (Selectable loss in weight 0,01 %–0,1 % in 30 s) • Time controlled switch-off (1 min – 12 h) • Manual switch-off at the press of a button
Recall of measurement/ Log output	Interval can be set from 1 s – 10 min (Only when used with printer KERN YKB-01N or PC)
Overall dimensions W×D×H	204×336×167 mm
Net weight	approx. 4,6 kg
Price €, excl. of VAT, ex works	**1270,-**
Option DAkkS Calibr. Certificate	Mass: KERN 963-127, € 72,-
Option Factory Calibr. Certificate	Temperature: KERN 964-305, € 140,-

Accessories

- **Protective working cover,** scope of delivery: 5 items, KERN DBS-A03S05, **€ 40,-**
- **Sample plates aluminium,** ⌀ 90 mm, unit of 80 pieces, KERN MLB-A01A, **€ 45,-**
- **Round fiberglass filter** high mechanical stability, with organic binder, box of 100 pieces, KERN RH-A02, **€ 80,-**
- 7 **Temperature calibration set** consists of measuring sensor and display device, KERN DBS-A01., **€ 450,-**
- **USB interface kit** for bi-directional data exchange between balance/moisture analyser and computer. Scope of delivery: USB cable, driver, Software Balance Connection, KERN DBS-A02, **€ 290,-**
- 8 Display of the drying process in conjunction with BalanceConnection, KERN SCD-4.0, **€ 150,-**
- **Thermal printer,** KERN YKB-01N, **€ 320,-**
- **Matrix needle printer,** to print the weights on normal paper, ideal for long-term archiving, KERN 911-013, **€ 390,-**
- **Label printer,** KERN YKE-01, **€ 590,-**









The moisture analyser for heavy, high-volume samples

Features

- Backlit LCD display, digit height 17 mm
  1 Current moisture content in %
  2 Unit for displaying the results
  3 Drying process active
- **Halogen quartz glass heater** 400 W
- **Internal memory** for automatic sequence of 5 complete drying processes
- The last value measured remains on the display until it is replaced by a new measurement
- **10 sample plates included**
- **Protective working cover** included with delivery
- **Application handbook:** On the internet, you will find a practical application handbook containing many examples, field reports, settings and tips for each KERN moisture analyser

STANDARD



OPTION



Modell KERN	DLB 160-3A
Readability [d]	0,001 g/0,01 %
Weighing capacity [Max]	160 g
Reproducibility, weight of sample 10 g	0,05 %
Display after drying (Display can be switched over at any time)	
Moisture [%] = Moisture content (M) from wet weight (W)	0–100 %
Dry content [%] = Dry weight (D) from W	100–0 %
ATRO [%] [(W-D) : D] · 100%	0–999 %
Moisture content (M)	Absolute value in [g]
Temperature range	35 °C–160 °C in steps up to 1 °C
Drying modes	Standard drying Rapid drying, Vorheizstufe zuschaltbar
Switch-off criteria	• Automatic unrestricted switch-off (Selectable loss in weight 0,1%-9,9% in 60 s) • Time controlled switch-off (1 min – 99 min) • Manual switch-off at the press of a button
Log output	• Continuous output (residual weight) • At the end of the drying process, manual or automatic (Only in connection with KERN YKB-01N printer or PC)
Overall dimensions W×D×H	210×340×225 mm
Net weight	approx. 4,2 kg
Price €, excl. of VAT, ex works	**1170,-**
Option DAkkS Calibr. Certificate	Mass: KERN 963-127, € 72,-
Option Factory Calibr. Certificate	Temperature: KERN 964-305, € 140,-

Accessories

- **Protective working cover,** scope of delivery: 5 items, KERN ALJ-A01S05, **€ 40,-**
- **Sample plates aluminium,** ø 90 mm. unit of 80 pieces, KERN MLB-A01A, **€ 45,-**
- 4 **Round fiberglass filter** high mechanical stability, with organic binder, box of 100 pieces, KERN RH-A02, **€ 80,-**
- **Round fiberglass filter,** medium mechanical stability, without organic binder, box of 100 pieces, KERN YMF-A01, **€ 25,-**
- 4 **Temperature calibration set** consists of measuring sensor and display device, KERN DLB-A01N., **€ 460,-**
- **Thermal printer,** KERN YKB-01N, **€ 320,-**
- **Matrix needle printer,** to print the weights on normal paper, ideal for long-term archiving, KERN 911-013, **€ 390,-**