BALANCES & TEST SERVICE 2023

PRECISION BALANCES

<u>KERN</u>

Compact laboratory balance KERN 440



The classic balance in the laboratory

Features

- · Compact size, practical for small spaces
- Percentage determination: makes it possible to store a given weight value (100 %) and to determine deviations from this target value
- Ring-shaped draught shield standard, only for models with weighing plate size Ø 81 mm, weighing space Ø×H 90×40 mm
- Protective working cover included with delivery

Technical data

- Backlit LCD display, digit height 15 mm
- Dimensions weighing surface, weighing plate material
- ▲ Ø 81 mm, plastic, with conductive lacquer
 Ø 105 mm, stainless steel
- **W**×D 130×130 mm, stainless steel
- W×D 150×170 mm, stainless steel, see larger picture
- Overall dimensions W×D×H 165×230×80 mm (without draught shield)
- Optional battery operation, 9 V block not included in scope of delivery, operating time up to 20 h, AUTO-OFF function to preserve the battery
- Net weight approx. 0,95 kg
- Permissible ambient temperature 5 °C/35 °C

Accessories

- Protective working cover, scope of delivery: 5 items, for models with weighing plate size
 KERN 440-210-002S05
 KERN 440-330-002S05
 KERN 440-450-002S05
 KERN 440-530-002S05
- Internal rechargable battery pack, operating time up to 20 h without backlight, charging time approx. 10 h, KERN FCB-A01
- Hook for underfloor weighing, KERN 440-A01
- RS-232/Ethernet adapter for connection to an IP-based Ethernet network, KERN YKI-01
- Individual header data: the free software SHM-01 can be used to print 4 header lines on the printout when using printers 911-013, YKN-01, YKB-01N, YKE-01 and YKC-01 (in combination with YKI-02)
- Further details, plenty of further accessories and suitable printers see *Accessories*

STANDARD	OPTION		
CAL EXT RS 232 PRINTER PC		VE UNDER BATT MULTI DMS 1 DA	

Model	Weighing capacity	Readability	Reproducibility	Linearity	Weighing plate	Option
KERN	[Max] g	[d] g	g	g		DAkkS Calibr. Certificate DAkkS KERN
440-21A	60	0,001	0,001	± 0,003	A	963-127
440-33N	200	0,01	0,01	± 0,02	В	963-127
440-35N	400	0,01	0,01	± 0,03	В	963-127
440-35A	600	0,01	0,01	± 0,03	В	963-127
440-43N	400	0,1	0,1	± 0,2	C	963-127
440-45N	1000	0,1	0,1	± 0,2	C	963-127
440-47N	2000	0,1	0,1	± 0,2	C	963-127
440-49N	4000	0,1	0,1	± 0,3	D	963-127
440-49A	6000	0,1	0,1	± 0,3	D	963-128
440-51N	4000	1	1	± 2	D	963-127
440-53N	6000	1	1	± 2	D	963-128

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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 or tablet.



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.



• 888. •

RS 232

• 1998. •

RS 485

KERN Universal Port (KUP):

allows the connection of external KUP PCS interface adapters, e.g. RS-232, RS-485, SB, Bluetooth, WLAN, Analogue, Ethernet etc. for the exchange of data and control commands, without installation effort

Data interface RS-232:

To connect the balance to a printer, PC or network



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

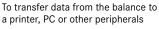
USB data interface:

To connect the balance to a printer, PC or other peripherals



USB

Bluetooth* data interface:





WiFi data interface:

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

Control outputs _0~0-SWITCH

(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:

license. Other trademarks and trade names are those of their respective owner

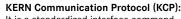
For direct connection of a second balance



KCP

Network interface: For connecting the scale to an

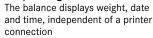
Ethernet network



It is a standardized interface command PROTOCOL 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: GLP

With weight, date and time. Only with KERN printers.



PRINTER

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

Recipe level A:

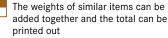
The weights of the recipe ingredients can be added together and the total weight of the recipe can be printed out



Internal memory for complete recipes RECIPE with name and target value of the recipe ingredients. User guidance through display



Totalising level A:



Determining the deviation in % from

Percentage determination:

the target value (100 %)

%

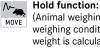
B

Weighing units: Can be switched to e.g. nonmetric UNIT units. 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



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Protection against dust and water splashes IPxx:

The type of protection is shown in the pictogram.

Suspended weighing: Load support with hook on the UNDER

Battery operation:

underside of the balance

Ready for battery operation. The battery BATT type is specified for each device



Rechargeable battery pack: Rechargeable set



Universal plug-in power supply: with universal input and optional input socket adapters for A) EU, CH, GB

B) EU, CH, GB, USA C) EU, CH, GB, USA, AUS

Plug-in power supply:

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



Integrated power supply unit: 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

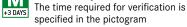


Weighing principle: Single cell technology:

Advanced version of the force compensation principle with the highest level of precision



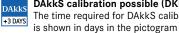
Verification possible:



Factory calibration (ISO):

Package shipment:

Pallet shipment:



ISO

1 DAY

2 DAYS

DAkkS calibration possible (DKD): The time required for DAkkS calibration

The time required for Factory calibration

The time required for internal shipping prepa-

The time required for internal shipping prepa-

rations is shown in days in the pictogram

rations is shown in days in the pictogram

is shown in days in the pictogram