# **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 GLP PRINTER PCS			ET ACCU DAkks

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

# **BALANCES & TEST SERVICE 2023**

KERN PICTOGRAMS



# Network interface:

Ethernet network



CAL INT

### Adjusting program CAL:

Internal adjusting:

weight (motordriven)

For quick setting up of the balance's accuracy. External adjusting weight required

Quick setting up of the balance's

accuracy with internal adjusting



# 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 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

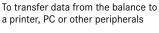
### USB data interface:

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\_ (optocoupler, digital I/O): SWITCH

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



MOVE

The type of protection is shown in the pictogram.





KCP

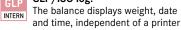
# For connecting the scale to an



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



connection



The balance displays weight, date



PRINTER

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

## **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:** Å

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



**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 %)

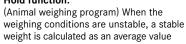
### Weighing units: B

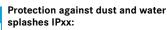
Can be switched to e.g. nonmetric UNIT units. See balance model. Please refer to KERN's website for more details



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: M--



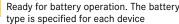


### Suspended weighing: UNDER

BATT

Load support with hook on the underside of the balance

### **Battery operation:**





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: The time required for verification is +3 DAYS specified in the pictogram



**ISO** 

+4 DAYS

1 DAY

2 DAYS

### DAkkS calibration possible (DKD):

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

The time required for DAkkS calibration is shown in days in the pictogram

Factory calibration (ISO):

Package shipment:

Pallet shipment:



Pricing on any accessories shown can be found by keying the part number into the search box on our website. The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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