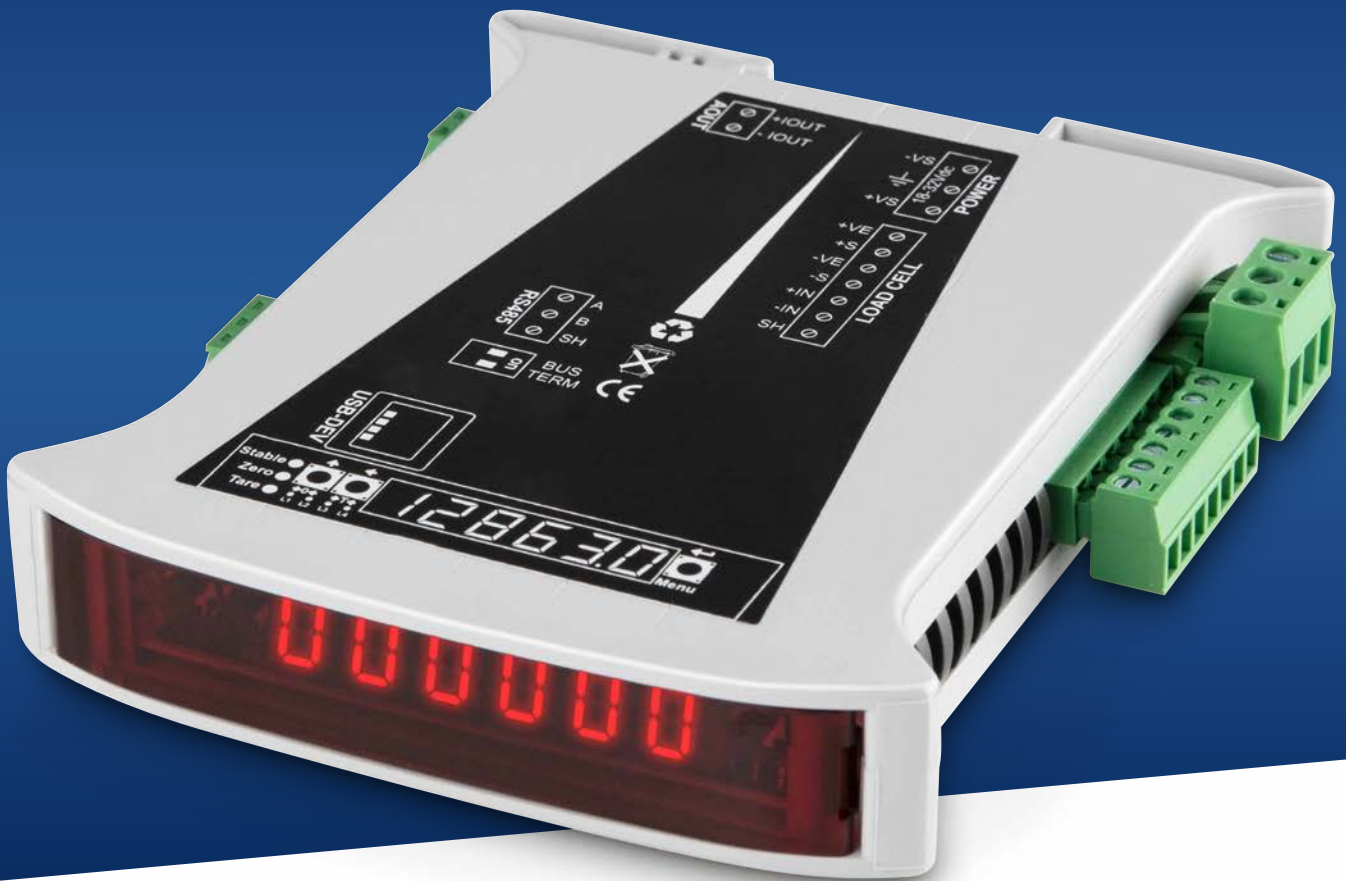









































# SYSTEM SOLUTIONS INDUSTRY 4.0

PROFESSIONAL  
MEASURING



# 2020

# KERN Pictograms

 <b>Internal adjusting:</b> Quick setting up of the balance's accuracy with internal adjusting weight (motordriven)	 <b>KERN Communication Protocol (KCP):</b> 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	 <b>Protection against dust and water splashes IPxx:</b> The type of protection is shown in the pictogram. For details see page 62
 <b>Adjusting program CAL:</b> For quick setting up of the balance's accuracy. External adjusting weight required	 <b>GLP/ISO log:</b> The balance displays serial number, user ID, weight, date and time, regardless of a printer connection	 <b>Stainless steel:</b> The balance is protected against corrosion
 <b>Easy Touch:</b> Suitable for the connection, data transmission and control through PC, tablet or smartphone	 <b>GLP/ISO log:</b> With weight, date and time. Only with KERN printers, see page 171-173	 <b>Suspended weighing:</b> Load support with hook on the underside of the balance
 <b>Memory:</b> Balance memory capacity, e.g. for article data, weighing data, tare weights, PLU etc.	 <b>Piece counting:</b> Reference quantities selectable. Display can be switched from piece to weight	 <b>Battery operation:</b> Ready for battery operation. The battery type is specified for each device
 <b>Alibi memory:</b> Secure, electronic archiving of weighing results, complying with the 2014/31/EU standard. For details see page 223	 <b>Recipe level A:</b> The weights of the recipe ingredients can be added together and the total weight of the recipe can be printed out	 <b>Rechargeable battery pack:</b> Rechargeable set
 <b>Data interface RS-232:</b> To connect the balance to a printer, PC or network	 <b>Recipe level B:</b> Internal memory for complete recipes with name and target value of the recipe ingredients. User guidance through display	 <b>Universal mains adapter:</b> with universal input and optional input socket adapters for A) EU, CH, GB B) EU, CH, GB, USA C) EU, CH, GB, USA, AUS
 <b>RS-485 data interface:</b> To connect the balance to a printer, PC or other peripherals. Suitable for data transfer over large distances. Network in bus topology is possible	 <b>Recipe level C:</b> 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	 <b>Mains adapter:</b> 230V/50Hz in standard version for EU, CH. On request GB, USA or AUS version available
 <b>USB data interface:</b> To connect the balance to a printer, PC or other peripherals	 <b>Totalising level A:</b> The weights of similar items can be added together and the total can be printed out	 <b>Power supply:</b> Integrated in balance. 230V/50Hz standard EU. More standards e.g. GB, USA or AUS on request
 <b>Bluetooth* data interface:</b> To transfer data from the balance to a printer, PC or other peripherals	 <b>Percentage determination:</b> Determining the deviation in % from the target value (100 %)	 <b>Weighing principle: Strain gauges</b> Electrical resistor on an elastic deforming body
 <b>WLAN data interface:</b> To transfer data from the balance to a printer, PC or other peripherals	 <b>Weighing units:</b> 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	 <b>Weighing principle: Tuning fork</b> A resonating body is electromagnetically excited, causing it to oscillate
 <b>Control outputs (optocoupler, digital I/O):</b> To connect relays, signal lamps, valves, etc.	 <b>Weighing with tolerance range:</b> (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	 <b>Weighing principle: Electromagnetic force compensation</b> Coil inside a permanent magnet. For the most accurate weighings
 <b>Analogue interface:</b> to connect a suitable peripheral device for analogue processing of the measurements	 <b>Hold function:</b> (Animal weighing program) When the weighing conditions are unstable, a stable weight is calculated as an average value	 <b>Weighing principle: Single cell technology:</b> Advanced version of the force compensation principle with the highest level of precision
 <b>Interface for second balance:</b> For direct connection of a second balance	 <b>Package shipment:</b> The time required for internal shipping preparations is shown in days in the pictogram	 <b>Verification possible:</b> The time required for verification is specified in the pictogram
 <b>Network interface:</b> For connecting the scale to an Ethernet network	 <b>Pallet shipment:</b> The time required for internal shipping preparations is shown in days in the pictogram	 <b>DAkkS calibration possible (DKD):</b> The time required for DAkkS calibration is shown in days in the pictogram
 <b>Wireless data transfer:</b> between the weighing unit and the evaluation unit using an integrated radio module		

# KERN – measuring technology and testing services from a single source



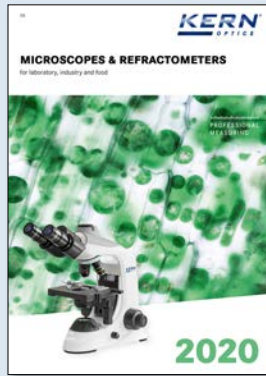
## Balances & Test service catalogue

Provides a complete overview of the KERN line of balances, test weights, and services such as verification, calibration, etc.



## Medical scales catalogue

Complete line of medical scales, from infant scales to patient scales, chair scales and adiposity scales, as well as hand grip dynamometers, chemist's balances and veterinary scales.



## Microscopes & refractometers catalogue

Extensive range in the area of optical instruments, such as, for example, biological microscopes, stereo microscopes, metallurgical microscopes, polarisation microscopes as well as analogue and digital refractometers.



## SAUTER measuring equipment catalogue

Test instruments for industry and commerce, such as force, coating thickness, material thickness and calibration service.



## DAkkS calibration service brochure

Detailed information on topics pertaining to the calibration and verification of balances, test weights, and force measuring devices.

## Your advantages

### fast

- 24 hours delivery service for products in stock – ordered today, on its way tomorrow
- Sales & service hotline available from 8:00 am to 6:00 pm

### reliable

- Up to 3 years warranty
- Precision in weighing technology for more than 175 years

### competent

- DAkkS accreditation DIN EN ISO/IEC 17025
- Certified QM system DIN EN ISO 9001
- Authorisation for initial verification by the manufacturer 2014/31/EU
- Medical certifications DIN EN ISO 13485 and 93/42/EWG

### versatile

- One-stop shopping: from pocket balances through to 15 t crane balance – everything from one supplier
- Find the product you want at lightning speed with the “Balance Quick-Finder” at [www.kern-sohn.com](http://www.kern-sohn.com)



**Order hotline**  
+49 7433 9933-0



**Online Shop**  
[www.kern-sohn.com](http://www.kern-sohn.com)



**Service hotline**  
+49 7433 9933-199



**E-mail order**  
[info@kern-sohn.com](mailto:info@kern-sohn.com)



**Calibration hotline**  
+49 7433 9933-196



**Fax order**  
+49 7433 9933-146



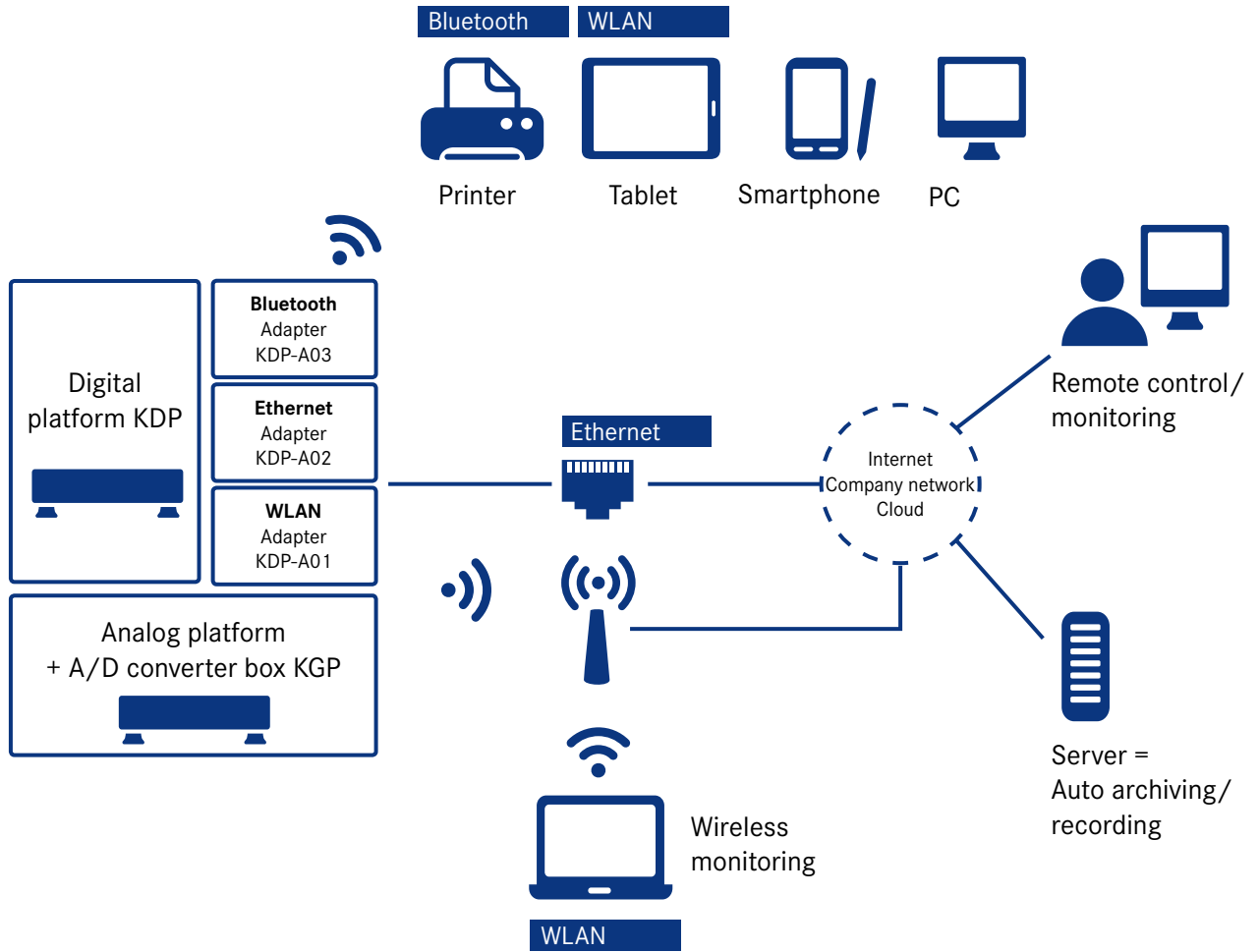
**Our team of consultants will assist you**  
from Monday to Friday  
from 8:00 am to 6:00 pm



### [www.kern-sohn.com](http://www.kern-sohn.com)

Information on current product availability, product data sheets, user instructions, useful knowledge, technical glossary, images and much for you to download, practical topic areas, which will guide you to the right product in your industry as well as a clever test weight and balance search engine.

## System solutions Industry 4.0



We will help to combine industrial production with the latest information and communication technology, with the aim of improving quality, reducing costs and using time and resources more efficiently so that you are able to react to future requirements in a more flexible manner. You will benefit from our uniform data protocol combined with our BalanceConnection 4.0 data software, for details please see page 175/176.

### The KERN team in our centre of expertise – Industry 4.0



Daniel Egeler



Edgar Litti



Ralf Kurschat



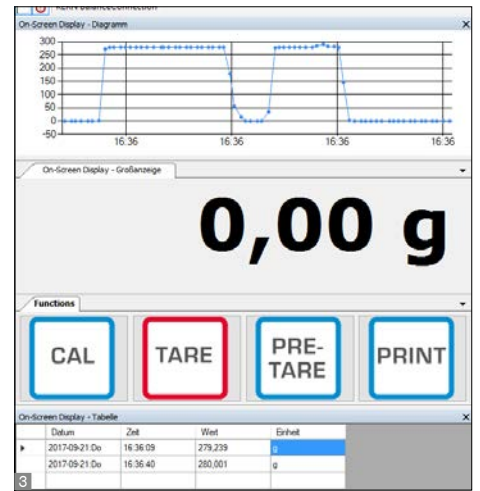
Fabian Brenner

▷ **We would like to inform you and advise you**

**Tel. +49 7433 9933-200**  
**ITsupport@kern-sohn.com**



Sim. to illustration



## Robust industrial platform scale with A/D converter box, ideal for varied range of applications for Industry 4.0

### Features

- With this combination of **1** platform (KERN KFP V20 IP65) and A/D converter box (KERN YKV-01) your weighing processes are ready for the requirements of Industry 4.0. Simply install the platform, connect the A/D converter box to the network and start weighing
- For rapid transfer of weighing data to connected networks, computers, etc.
- USB and RS-232 data interface standard, Power supply via USB interface
- Transfer formats are freely configurable
- Functions: Weighing, taring
- Internal resolution 16 million divisions
- Measurement frequency 10 Hz
- Easy configuration using the software supplied
- KERN YKV-01: Robust plastic die-cast housing
- **2** KERN YKV-01: Suitable for wall mounting and DIN track mount (optional)

### Included with delivery:

- Industrial platform KERN KFP
- A/D converter box KERN YKV-01
- DIN rail mounting bracket
- Configuration software for adjusting and managing the KERN KDP, for large-format display of the values collected on the PC as well as transfer of this data to other Apps and programs. The displayed result can therefore be converted to any format for communication with the different user programs, such as, for example, e.g. SAP, Oracle etc.

### Technical Data

- Weighing plate material stainless steel
- KERN YKV: Overall dimensions W×D×H 100×127×28 mm
- Permissible ambient temperature -10 °C/ 40 °C

### Accessories

- **Bluetooth data interface**, KERN YKV-A02, € 60,-
- **WiFi data interface**, KERN YKV-A01, € 60,-
- **Ethernet data interface** on request
- **2** **DIN rail mounting bracket** for KERN YKV, KERN YKV-A03, € 60,-
- **3** **Software BalanceConnection**, flexible recording or transfer of measurements, particularly to Microsoft® Excel or Access as well as transfer of this data to other Apps and programs. The displayed result can therefore be converted to any format for communication with the different user programs, such as, for example, e.g. SAP, for details see page 175, KERN SCD-4.0, € 150,-

### STANDARD



### OPTION

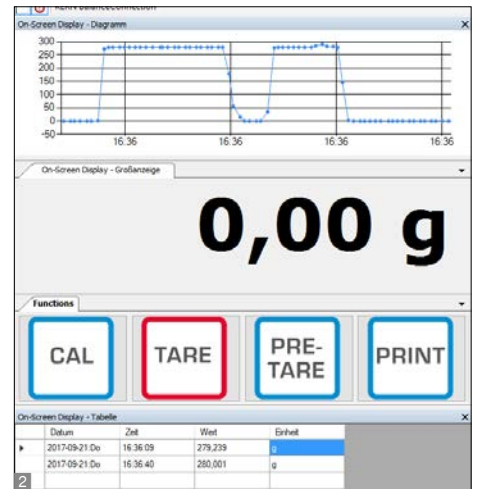


### FACTORY



Model	Weighing capacity [Max] kg	Read-out [d] g	Weighing plate mm	Cable length m	Net weight approx. kg	Price excl. of VAT ex works €	Options	
							DAKKS KERN	Calibr. Certificate €
KGP 6K-4	6	0,2	300×240×120	3	6	430,-	963-128	88,-
KGP 6K-4L	6	0,2	400×300×128	3	10	450,-	963-128	88,-
KGP 10K-4	15	0,5	300×240×120	3	6	450,-	963-128	88,-
KGP 10K-4L	15	0,5	400×300×128	3	10	490,-	963-128	88,-
KGP 30K-3	30	1	300×240×120	3	6	450,-	963-128	88,-
KGP 30K-3L	30	1	400×300×128	3	10	490,-	963-128	88,-
KGP 60K-3	60	2	400×300×128	3	10	520,-	963-129	105,-
KGP 60K-3L	60	2	500×400×137	3	13	580,-	963-129	105,-
KGP 100K-3	150	5	500×400×137	3	14	580,-	963-129	105,-
KGP 100K-3L	150	5	650×500×142	3	22	780,-	963-129	105,-
KGP 300K-2L	300	10	650×500×142	3	22	780,-	963-129	105,-





Modern A/D converter for the rapid recording of weighing data and forwarding it to the most varied output channels such as tablets, networks, SPS controllers, etc. – ideal for operating balances in systems or conveyors

**Features**

- With this A/D converter box your weighing processes are ready for the requirements of Industry 4.0. Simply connect a weighing platform or measuring cell, integrate the A/D converter box into the network and start weighing
- For rapid transfer of weighing data to connected networks, computers, etc.
- USB and RS-232 data interface standard, Power supply via USB interface
- Transfer formats are freely configurable
- Functions: Weighing, taring
- Internal resolution 16 million divisions
- Measuring frequency 10 Hz
- Easy configuration using the software supplied
- Robust plastic die-cast housing
- **1** Suitable for wall mounting and DIN track mount
- Compatible with all KERN weighing platforms

**Included with delivery:**

- Industrial platform KERN KFP
- USB cable incl. mains plug
- DIN rail mounting bracket
- A/D converter box KERN YKV-01
- **2** Configuration software for adjusting and managing the KERN KDP, for large-format display of the values collected on the PC as well as transfer of this data to other Apps and programs. The displayed result can therefore be converted to any format for communication with the different user programs, such as, for example, e.g. SAP, Oracle etc.

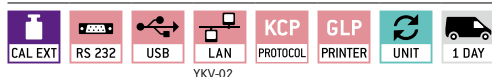
**Technical Data**

- Overall dimensions W×D×H 100×127×28 mm
- Net weight approx. 1,2 kg
- Permissible ambient temperature -10 °C/40 °C

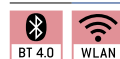
**Accessories**

- **Bluetooth data interface**, KERN YKV-A02, € 60,-
- **WiFi data interface**, KERN YKV-A01, € 60,-
- **DIN rail mounting bracket** for KERN YKV, KERN YKV-A03, € 60,-
- **Software BalanceConnection**, flexible recording or transfer of measurements, particularly to Microsoft® Excel or Access as well as transfer of this data to other Apps and programs. The displayed result can therefore be converted to any format for communication with the different user programs, such as, for example, e.g. SAP, for details see page 175, KERN SCD-4.0, € 150,-

STANDARD



FACTORY



Model	Standard interfaces	Price excl. of VAT ex works €
KERN		
YKV-01	RS-232, USB	190,-
YKV-02	RS-232, USB, Ethernet	240,-

NEW



Fig. shows KERN CE HSA



Your contact for technical questions



**Stefan Herrmann**

Tel. +49 7433 9933-214  
 Fax +49 7433 9933-29214  
 stefan.herrmann@kern-sohn.com

Super compact display device (rail-mounted module) for installation in switch cabinets

**Features**

- Compact display unit for recording weighing data using strain gauge load cells, e.g. in industrial applications
- Due to its small size, it is particularly space-saving to install in switch cabinets
- Thanks to the many interface variants, the modules can be ideally integrated into existing infrastructures and systems
- The modules can be used either individually or as a Buslink system with a total of up to 332 DIN rail modules

- The configuration of the module can be carried out conveniently via a connected PC with the supplied software
- Bright LED display for optical control and settings
- Time-saving G-Cal™ (Geographic Calibration) technology for fast and accurate calibration without weights conveniently over a network or the Internet worldwide
- Convenient communication via remote devices
- Backup and restore function via USB port
- Can handle various industrial protocols such as Ethernet IP, Modbus TCP, Modbus RTU, FINS and Profibus DP

- Extremely high measurement frequency possible, up to 1600 data records/s
- Internal resolution 24 Bit

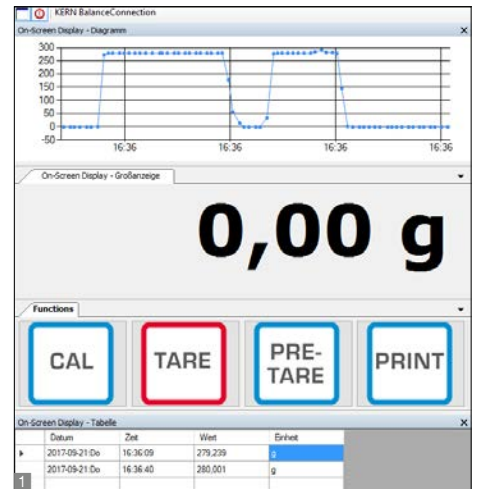
**Technical Data**

- LCD display, digit height 7,6 mm
- Dimensions W×D×H 101×120×22,5 mm
- Permissible ambient temperature -10 °C/40°C

**Accessories**

- Mains adapter for power supply of the KERN CE HS, mountable on DIN rail, KERN CE HSS, € 80,-

Features	Model KERN			
	CE HSA	CE HSE	CE HSP	CE HSR
<b>Power supply</b>	18-32 Vdc; 4 W max.	18-32 Vdc; 4 W max.	18-32 Vdc; 4 W max.	18-32 Vdc; 4 W max.
<b>Load cell power supply</b>	5 Vdc	5 Vdc	5 Vdc	5 Vdc
<b>Sensitivity</b>	0,1 µV/d	0,1 µV/d	0,1 µV/d	0,1 µV/d
<b>Adjustable nominal sensitivity</b>	1; 1.5; 2; 2.5; 3 mV/V	1; 1.5; 2; 2.5; 3 mV/V	1; 1.5; 2; 2.5; 3 mV/V	1; 1.5; 2; 2.5; 3 mV/V
<b>Input voltage Unipolar @3mV/V</b>	-1 mV to +16 mV	-1 mV to +16 mV	-1 mV to +16 mV	-1 mV to +16 mV
<b>Input voltage Bipolar @3mV/V</b>	-16 mV to +16 mV	-16 mV to +16 mV	-16 mV to +16 mV	-16 mV to +16 mV
<b>A/D Conversion speed</b>	1600/s	1600/s	1600/s	1600/s
<b>Max. load cell impedance</b>	1200Ω	1200Ω	1200Ω	1200Ω
<b>Min. load cell impedance</b>	43,75 Ω	43,75 Ω	43,75 Ω	43,75 Ω
<b>Max. no. of load cells 350 Ω</b>	8	8	8	8
<b>Max. no. of load cells 1000 Ω</b>	22	22	22	22
<b>Max. number of d</b>	10.000	10.000	10.000	10.000
<b>Display steps</b>	1,2,5, 10,20,50,100,200	1,2,5, 10,20,50,100,200	1,2,5, 10,20,50,100,200	1,2,5, 10,20,50,100,200
<b>Communication/Interfaces</b>	USB	USB, Ethernet	USB, Profibus	USB, RS232/422
<b>Analog output</b>	0/4-20/24mA	-	-	-
<b>Dimensions W×D×H</b>	120×110×22 mm	120×110×22 mm	120×110×22 mm	120×110×22 mm
<b>Net weight g</b>	150	150	150	150
<b>Price excl. of VAT ex works €</b>	<b>480,-</b>	<b>540,-</b>	<b>540,-</b>	<b>510,-</b>



## Universal weighing platforms for flexible connection into process chains

### Features

- Industry 4.0 process chains: these weighing platforms can be easily integrated into your process chain. All recorded values can be easily transferred and processed further in your system as digital data and data that has already been compared using the many interfaces available. This saves cost, time and resources and ensures even more effective working
- Connecting the balance with a tablet or PC offers the advantage of being able to use the apps and programs which are on that device. These apps and programs are usually already tailored to your needs, are easy and convenient to use and can often be expanded as needed. This offers you the maximum level of flexibility when displaying, processing and saving the recorded weighing data
- **Searching and remote control of the balance** using external control devices or computers with the KERN Communication Protocol (KCP). KCP is a standardised interface command structure for KERN balances and other instruments which allows you to recall

and manage all relevant parameters and device functions. You can therefore simply connect KERN devices with KCP to computers, industrial control systems and other digital systems. In a large number of cases the KCP is compatible with the MT-SICS protocol

- **PRE-TARE function** for manual subtraction of a known container weight, useful for checking fill-levels
- **Freely programmable weighing unit**, e.g. display direct in special units such as length of thread g/m, paper weight g/m<sup>2</sup>, or similar
- **Level indicator and levelling feet** for precise levelling of the scale, fitted as standard, to give the most accurate weighing result
- **Draught shield** standard for models with weighing plate size **A**, weighing space W×D×H 146×146×80 mm
- Included with delivery:
  - **Software BalanceConnection** for adjusting and managing the KERN KDP, for large-format display of the values collected on the PC as well as transfer of this data to other Apps and programs

### Technical Data

- Dimensions weighing surface
  - A** Ø 105 mm
  - B** W×D 160×160 mm, see larger picture
- Weighing plate material
  - A** plastic, with conductive lacquer
  - B** stainless steel
- Overall dimensions W×D×H 165×166×75 mm (without draught shield)
- Cable length approx. 1,2 m
- Net weight approx. 1,2 kg
- Permissible ambient temperature 5 °C / 35 °C

### Accessories

- **Bluetooth data interface** for wireless data transfer to PC or tablets, must be ordered at purchase, KERN KDP-A03, **€ 50,-**
- **WiFi interface** for wireless connection of the balance to networks and WiFi capable devices, such as tablets, laptops or smartphones, must be ordered at purchase, please ask for delivery time, KERN KDP-A01, **€ 50,-**
- **Ethernet data interface**, to connect an IP-based Ethernet network, must be ordered at purchase, not in combination with verification, KERN KDP-A02, **€ 100,-**

STANDARD						OPTION			FACTORY				
						<b>+3 DAYS</b>							

Model	Weighing capacity [Max] g	Read-out [d] g	Reproducibility g	Linearity g	Weighing plate mm	Price excl. of VAT ex works €	Options	
							DAkkS KERN	DAkkS Calibr. Certificate €
KDP 300-3	350	0,001	0,002	± 0,005	<b>A</b>	<b>390,-</b>	963-127	72,-
KDP 3000-2	3500	0,01	0,02	± 0,05	<b>B</b>	<b>390,-</b>	963-127	72,-
KDP 10K-4	10000	0,1	0,1	± 0,3	<b>B</b>	<b>390,-</b>	963-128	88,-
KDP 10K-3	10000	1	1	± 3	<b>B</b>	<b>410,-</b>	963-128	88,-



**KERN & SOHN GmbH**  
**Balances, Test weights, Microscopes,**  
**DAkkS calibration laboratory**

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 72336 Balingen  
 Germany

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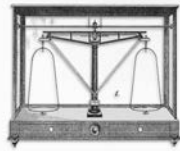
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 www.kern-sohn.com

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**1769**

Ancestor Johann Jakob Sauter built the Hahn inclination scale out of iron, a foundation stone for weighing for the balance industry in Southern Germany



**1844**

KERN is founded – precision balances are produced



**1863**

A proud Gottlieb Kern with his staff



**1880**

Pharmaceutical balance with Aesculap



**1923**

Inflation – KERN wages are paid with self printed currency



**1980**

The electronic balance ousts mechanical devices



**1994**

Accredited DKD laboratory (ISO 17025)



**2000**

New premises in Balingen



**2002**

Existing QM system certification in accordance with DIN EN ISO 9001:2000 standards



**2007**

Approval for the manufacture of medical products (DIN EN 13485 and 93/42/EEC)



**2008**

Authorisation for initial verification by the manufacturer (2009/23/EC)



**2009**

Approval for the manufacture and sale of height rods (DIN EN 13485 and 93/42/EEC)



**2012**

Verification point for non-automatic balances and test weights.

New customer portal [www.kern-sohn.com](http://www.kern-sohn.com) goes live



**2014**

Expansion of the product range to include optical instruments (microscopes and refractometers)



**2015**

Inauguration of Ziegelei 2.0 with computer-controlled high-bay warehouse



**2017**

Come with KERN into the digital future: Expansion of the model ranges compatible with Industry 4.0, as well as the related services



**2019**

Significant anniversary year! 25 years of accredited DKD laboratory 175 years of KERN & SOHN 250 years of balance manufacture in the Sauter family-owned company



**2020**

Construction of Ziegelei 3.0, extension of administration building