PROFESSIONAL MEASURING
SINCE 1844

KERN

Product brochure

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# SAUTER FS 2-2KSP1

Ready-assembled set consisting of premium force gauge FS 2 and external "S" measuring cell CS 250-3P1 for tensile and compressive force measurements

ENGLISH




## CONTACT

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## FEATURES

Premium force-measuring device FS 2

- Measurement of forces in different tensile or compression directions possible with only one measuring device
- 3,5" touchscreen with touch pen
- Standard version with 2 measuring channels for external force sensors (subsequently expandable from 2 to 4)
- The specific data of an external sensor are stored directly in the connector
- Track function for continuous measurement display
- Peak value measurement
- Tolerance function
- Internal device memory (16 GB)
- USB interface for data transfer and power supply as standard
- Two-point adjustment with weights or numerical adjustment possible
- Supplied in a high-quality and robust system case (systainer® T-LOC) including plug-in power supply and USB cable type C

4-wire “S” measuring cell made of nickel-plated steel for force and mass measurement CS 250-3P1

- Accuracy class in accordance with OIML C3
- Nominal sensitivity: 2 mV/V
- Protection against dust and water splashes IP67 (in accordance with EN 60529), hermetically encapsulated
- Area of application: for tensile and compressive force measurement

## TECHNICAL DATA

- Resolution: up to 10000 points per measurement channel
- Storage of measured values as well as their transmission to the interface with up to 1000 Hz per measuring channel
- Mounting - force application: Fine thread M12×1.75
- Mounting - force dissipation: Fine thread M12×1.75
- Rechargeable battery pack integrated, as standard, operating time up to 8 h without backlight, charging time approx. 8 h
- External mains adapter, for connection to the USB-C connector, standard
- Net weight approx. 1,8 kg

## MAIN SCOPE OF APPLICATIONS

- Test laboratories
- Research and development
- Automotive industry
- Maintenance and servicing
- Plastics technology

## PICTOGRAMS

Standard




Option




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## MODEL OVERVIEW

| Model | Measuring range [Max] | Readability [d] |
|---|---|---|
| FS 2-1KSP1 | 1 kN | 0,2 N |
| FS 2-2KSP1 | 2,5 kN | 0,5 N |
| FS 2-5KSP1 | 5 kN | 1 N |
| FS 2-10KSP1 | 10 kN | 2 N |
| FS 2-20KSP1 | 20 kN | 4 N |
| FS 2-50KSP1 | 50 kN | 10 N |
| FS 2-100KSP1 | 100 kN | 20 N |

## ACCESSORIES

| Model | Description |
|---|---|
| AC 14 | Screw tension clamp with jaws AC 14 (up to 500 N \| width 16 mm, \| clamping width 4 mm \| 2 piece) |
| AC 14R | Screw tension clamp with jaws AC 14R (up to 500 N \| width 16 mm, \| clamping width 4 mm \| 1 piece) |
| AE 01 | Standard Clamp AE 01 |
| AE 02 | Standard Clamp AE 02 |
| AE 03 | Strip tension clamp AE 03 (up to 500 N \| width 40 mm, \| clamping width 2,5 mm \| 1 ) |
| AE 04 | Strip tension clamp AE 04 (up to 500 N \| width 15 mm, \| clamping width 6 mm \| 1 ) |
| AE 05 | Rope and thread tension clamp AE 05 (up to 500 N \| width , \| clamping width 2,5 mm \| 1 ) |
| AE 06 | Cable pull-off clamp AE 06 |

| Model | Description |
|---|---|
| AE 07 | Wedge Clamp with jaws AE 07 (up to 500 N \| width 14 mm, \| clamping width 6 mm \| 1 ) |
| AFH 05 | Stainless steel handle with plastic coating AFH 05 |
| AFM 16 | Adapter AFM 16 (External thread M12 \| Threaded hole M10) |
| AFM 17 | Adapter AFM 17 (External thread M12 \| External thread M10) |
| AFM 18 | Adapter AFM 18 (External thread M12 \| External thread M10) |
| AFM 19 | Adapter AFM 19 (External thread M12 \| Threaded hole M18 × 1,5) |
| AFM 21 | Threaded pin AFM 21 |
| CE Q12 | Traction device CE Q12 |
| CE R12 | Rod end CE R12 |
| CE RR12 | Rod end CE RR12 |
| CJ P2 | Junctionbox CJ P2, Number of connection options: 2, aluminium, |
| CJ P4 | Junctionbox CJ P4, Number of connection options: 4, aluminium, IP65 |
| CJ P4PG | Junctionbox CJ P4PG, Number of connection options: 4, aluminium, |
| CJ X467 | Junctionbox CJ X467, Number of connection options: 4, stainless steel, |
| CJ X468 | Junctionbox CJ X468, Number of connection options: 4, aluminium, |
| CO 0.5-Y5 | Load/force measuring cell CO 0.5-Y5, Nominal load 500 g / 5 N |
| CO 1-Y5 | Load/force measuring cell CO 1-Y5, Nominal load 1 kg / 10 N |
| CO 5-Y4 | Load/force measuring cell CO 5-Y4, Nominal load 5 kg / 50 N |
| CO 5-Y5 | Load/force measuring cell CO 5-Y5, Nominal load 5 kg / 50 N |
| CO 10-Y1 | Load/force measuring cell CO 10-Y1, Nominal load 10 kg / 100 N |
| CO 10-Y2 | Load/force measuring cell CO 10-Y2, Nominal load 10 kg / 100 N |
| CO 10-Y3 | Load/force measuring cell CO 10-Y3, Nominal load 10 kg / 100 N |
| CO 10-Y4 | Load/force measuring cell CO 10-Y4, Nominal load 10 kg / 100 N |
| CO 10-Y5 | Load/force measuring cell CO 10-Y5, Nominal load 10 kg / 100 N |
| CO 20-Y1 | Load/force measuring cell CO 20-Y1, Nominal load 20 kg / 200 N |
| CO 20-Y2 | Load/force measuring cell CO 20-Y2, Nominal load 20 kg / 200 N |
| CO 50-Y1 | Load/force measuring cell CO 50-Y1, Nominal load 50 kg / 500 N |
| CO 50-Y2 | Load/force measuring cell CO 50-Y2, Nominal load 50 kg / 500 N |
| CO 100-Y1 | Load/force measuring cell CO 100-Y1, Nominal load 100 kg / 1 kN |
| CO 100-Y2 | Load/force measuring cell CO 100-Y2, Nominal load 100 kg / 1 kN |
| CO 200-Y1 | Load/force measuring cell CO 200-Y1, Nominal load 200 kg / 2 kN |

| Model | Description |
|---|---|
| CO 200-Y2 | Load/force measuring cell CO 200-Y2, Nominal load 200 kg / 2 kN |
| CO 500-Y1 | Load/force measuring cell CO 500-Y1, Nominal load 500 kg / 5 kN |
| CO 500-Y2 | Load/force measuring cell CO 500-Y2, Nominal load 500 kg / 5 kN |
| CO 1000-Y1 | Load/force measuring cell CO 1000-Y1, Nominal load 1000 kg / 10 kN |
| CO 1000-Y2 | Load/force measuring cell CO 1000-Y2, Nominal load 1000 kg / 10 kN |
| CO 2000-Y1 | Load/force measuring cell CO 2000-Y1, Nominal load 2000 kg / 20 kN |
| CO 2000-Y2 | Load/force measuring cell CO 2000-Y2, Nominal load 2000 kg / 20 kN |
| CR 60-3P1 | Load/force measuring cell CR 60-3P1, Nominal load 60 kg / 600 N |
| CR 130-3P1 | Load/force measuring cell CR 130-3P1, Nominal load 130 kg / 1,3 kN |
| CR 250-3P1 | Load/force measuring cell CR 250-3P1, Nominal load 250 kg / 2,5 kN |
| CR 500-1Y1 | Load/force measuring cell CR 500-1Y1, Nominal load 500 kg / 5 kN |
| CR 500-3P1 | Load/force measuring cell CR 500-3P1, Nominal load 500 kg / 5 kN |
| CR 1000-1Y1 | Load/force measuring cell CR 1000-1Y1, Nominal load 1000 kg / 10 kN |
| CR 2000-3P1 | Load/force measuring cell CR 2000-3P1, Nominal load 2000 kg / 20 kN |
| CR 2500-1Q1 | Load/force measuring cell CR 2500-1Q1, Nominal load 2500 kg / 25 kN |
| CR 5000-1Q1 | Load/force measuring cell CR 5000-1Q1, Nominal load 5000 kg / 50 kN |
| CR 5000-1Y1 | Load/force measuring cell CR 5000-1Y1, Nominal load 5000 kg / 50 kN |
| CR 10000-1Q1 | Load/force measuring cell CR 10000-1Q1, Nominal load 10000 kg / 100 kN |
| CR 10000-1Y1 | Load/force measuring cell CR 10000-1Y1, Nominal load 10000 kg / 100 kN |
| CR 20000-1Q1 | Load/force measuring cell CR 20000-1Q1, Nominal load 20000 kg / 200 kN |
| CR 20000-1Y1 | Load/force measuring cell CR 20000-1Y1, Nominal load 20000 kg / 200 kN |
| CR 30000-1Q1 | Load/force measuring cell CR 30000-1Q1, Nominal load 30000 kg / 300 kN |
| CS 1-Y1 | Load/force measuring cell CS 1-Y1, Nominal load 1 kg / 10 N |
| CS 2-Y1 | Load/force measuring cell CS 2-Y1, Nominal load 2 kg / 20 N |
| CS 5-Y1 | Load/force measuring cell CS 5-Y1, Nominal load 5 kg / 50 N |
| CS 10-Y1 | Load/force measuring cell CS 10-Y1, Nominal load 10 kg / 100 N |
| CS 20-Y1 | Load/force measuring cell CS 20-Y1, Nominal load 20 kg / 200 N |
| CS 25-3P1 | Load/force measuring cell CS 25-3P1, Nominal load 25 kg / 250 N |
| CS 50-3P1 | Load/force measuring cell CS 50-3P1, Nominal load 50 kg / 500 N |
| CS 50-3P2 | Load/force measuring cell CS 50-3P2, Nominal load 50 kg / 500 N |
| CS 50-3Q1 | Load/force measuring cell CS 50-3Q1, Nominal load 50 kg / 500 N |

| Model | Description |
|---|---|
| CS 100-3P1 | Load/force measuring cell CS 100-3P1, Nominal load 100 kg / 1 kN |
| CS 100-3P2 | Load/force measuring cell CS 100-3P2, Nominal load 100 kg / 1 kN |
| CS 100-3Q1 | Load/force measuring cell CS 100-3Q1, Nominal load 100 kg / 1 kN |
| CS 150-3P1 | Load/force measuring cell CS 150-3P1, Nominal load 150 kg / 1,5 kN |
| CS 150-3Q1 | Load/force measuring cell CS 150-3Q1, Nominal load 150 kg / 1,5 kN |
| CS 200-3Q1 | Load/force measuring cell CS 200-3Q1, Nominal load 200 kg / 2 kN |
| CS 250-3P1 | Load/force measuring cell CS 250-3P1, Nominal load 250 kg / 2,5 kN |
| CS 250-3P2 | Load/force measuring cell CS 250-3P2, Nominal load 250 kg / 2,5 kN |
| CS 300-3Q1 | Load/force measuring cell CS 300-3Q1, Nominal load 300 kg / 3 kN |
| CS 500-3P1 | Load/force measuring cell CS 500-3P1, Nominal load 500 kg / 5 kN |
| CS 500-3P2 | Load/force measuring cell CS 500-3P2, Nominal load 500 kg / 5 kN |
| CS 500-3Q1 | Load/force measuring cell CS 500-3Q1, Nominal load 500 kg / 5 kN |
| CS 600-3P1 | Load/force measuring cell CS 600-3P1, Nominal load 600 kg / 6 kN |
| CS 750-3P1 | Load/force measuring cell CS 750-3P1, Nominal load 750 kg / 7,5 kN |
| CS 750-3Q1 | Load/force measuring cell CS 750-3Q1, Nominal load 750 kg / 7,5 kN |
| CS 1000-3P1 | Load/force measuring cell CS 1000-3P1, Nominal load 1000 kg / 10 kN |
| CS 1000-3Q1 | Load/force measuring cell CS 1000-3Q1, Nominal load 1000 kg / 10 kN |
| CS 1500-3P1 | Load/force measuring cell CS 1500-3P1, Nominal load 1500 kg / 15 kN |
| CS 1500-3Q1 | Load/force measuring cell CS 1500-3Q1, Nominal load 1500 kg / 15 kN |
| CS 2000-3P1 | Load/force measuring cell CS 2000-3P1, Nominal load 2000 kg / 20 kN |
| CS 2000-3P2 | Load/force measuring cell CS 2000-3P2, Nominal load 2000 kg / 20 kN |
| CS 2000-3Q1 | Load/force measuring cell CS 2000-3Q1, Nominal load 2000 kg / 20 kN |
| CS 2500-3P1 | Load/force measuring cell CS 2500-3P1, Nominal load 2500 kg / 25 kN |
| CS 3000-3Q1 | Load/force measuring cell CS 3000-3Q1, Nominal load 3000 kg / 30 kN |
| CS 5000-3P1 | Load/force measuring cell CS 5000-3P1, Nominal load 5000 kg / 50 kN |
| CS 5000-3P2 | Load/force measuring cell CS 5000-3P2, Nominal load 5000 kg / 50 kN |
| CS 5000-3Q1 | Load/force measuring cell CS 5000-3Q1, Nominal load 5000 kg / 50 kN |
| CS 6000-3Q1 | Load/force measuring cell CS 6000-3Q1, Nominal load 6000 kg / 60 kN |
| CS 7500-3P1 | Load/force measuring cell CS 7500-3P1, Nominal load 7500 kg / 75 kN |
| CS 7500-3P2 | Load/force measuring cell CS 7500-3P2, Nominal load 7500 kg / 75 kN |
| CS 10000-3P1 | Load/force measuring cell CS 10000-3P1, Nominal load 10000 kg / 100 kN |

| Model | Description |
|---|---|
| CS 15000-3P1 | Load/force measuring cell CS 15000-3P1, Nominal load 15000 kg / 150 kN |
| CS 20000-3P1 | Load/force measuring cell CS 20000-3P1, Nominal load 20000 kg / 200 kN |
| CS 30000-3P1 | Load/force measuring cell CS 30000-3P1, Nominal load 30000 kg / 300 kN |
| DC 1-Y2 | Torque sensor DC 1-Y2, Nominal load 1 Nm |
| DC 5-Y1 | Torque sensor DC 5-Y1, Nominal load 5 Nm |
| DC 10-Y1 | Torque sensor DC 10-Y1, Nominal load 10 Nm |
| DC 10-Y2 | Torque sensor DC 10-Y2, Nominal load 10 Nm |
| DC 20-Y1 | Torque sensor DC 20-Y1, Nominal load 20 Nm |
| DC 20-Y2 | Torque sensor DC 20-Y2, Nominal load 20 Nm |
| DC 50-Y1 | Torque sensor DC 50-Y1, Nominal load 50 Nm |
| DC 50-Y2 | Torque sensor DC 50-Y2, Nominal load 50 Nm |
| DC 100-Y1 | Torque sensor DC 100-Y1, Nominal load 100 Nm |
| DC 200-Y1 | Torque sensor DC 200-Y1, Nominal load 200 Nm |
| DC 200M-Y2 | Torque sensor DC 200M-Y2, Nominal load 0,2 Nm |
| DC 500-Y1 | Torque sensor DC 500-Y1, Nominal load 500 Nm |
| FS-E07 | Power supply unit EURO FS-E07 |
| FS 34 | A / D converter module FS 34 |
| FS TKZ | Transport case FS TKZ |
| YKA-01 | Schuko> UK Plug Power Adapters YKA-01 |
| YKV-01 | Digital weighing transmitter YKV-01 |

## SOFTWARE

| Model | Description |
|---|---|
| AFH LD | Data transfer software for force-displacement-measurements AFH LD |
| Sauter Readout | Data transfer software Sauter Readout |

## SERVICES

| Model | Description |
|---|---|
| 961-163 | Factory calibration certificate 961-163 (tension \| N) |
| 961-263 | Factory calibration certificate 961-263 (compression \| N) |
| 961-363 | Factory calibration certificate 961-363 (tension, compression \| N) |

| Model | Description |
|---|---|
| 963-163 | DAkkS calibration certificate 963-163 (force direction tension \| measurement result unit N \| calibration standard DKD-R 3-3 - sequence A) |
| 963-263 | DAkkS calibration certificate 963-263 (force direction compression \| measurement result unit N \| calibration standard DKD-R 3-3 - sequence A) |
| 963-363 | DAkkS calibration certificate 963-363 (force direction tension, compression \| measurement result unit N \| calibration standard DKD-R 3-3 - sequence A) |
| 970-106 | Warranty extension (+2 years) 970-106 |

# KERN Pictogram Overview

| | |
|---|---|
|  | Peak hold function: capturing a peak value within a measuring process |
|  | Scan mode: continuous capture and display of measurements |
|  | Push and Pull: the measuring device can capture tension and compression forces |
|  | Memory: Device-internal memory capacity, e.g. for article data, measuring data, tare weights, PLU etc. |
|  | Data Interface USB: For connection to printers, PCs or other peripheral devices |
|  | KERN Communication Protocol (KCP): 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 |
|  | Measuring with tolerance range (checkweighing): Upper and lower limit values can be programmed, e.g. for sorting, portioning or for measuring coatings or material thicknesses. The process is supported by an acoustic and/or optical signal |
|  | ZERO: Reset the display to 0 |
|  | Load Cell: Protection against dust and water splashes IP67 |
|  | Rechargeable battery pack: Rechargeable set |
|  | Plug-in power supply: 230V/50Hz in standard version for EU, CH. On request GB, USA or AUS version available |
|  | Package shipment by courier service: The duration of internal product provision are three days |
|  | PC Software: to transfer the measurements from the device to a PC |
|  | Accredited calibration (DKD): The duration of the accredited calibration is 3 working days |

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