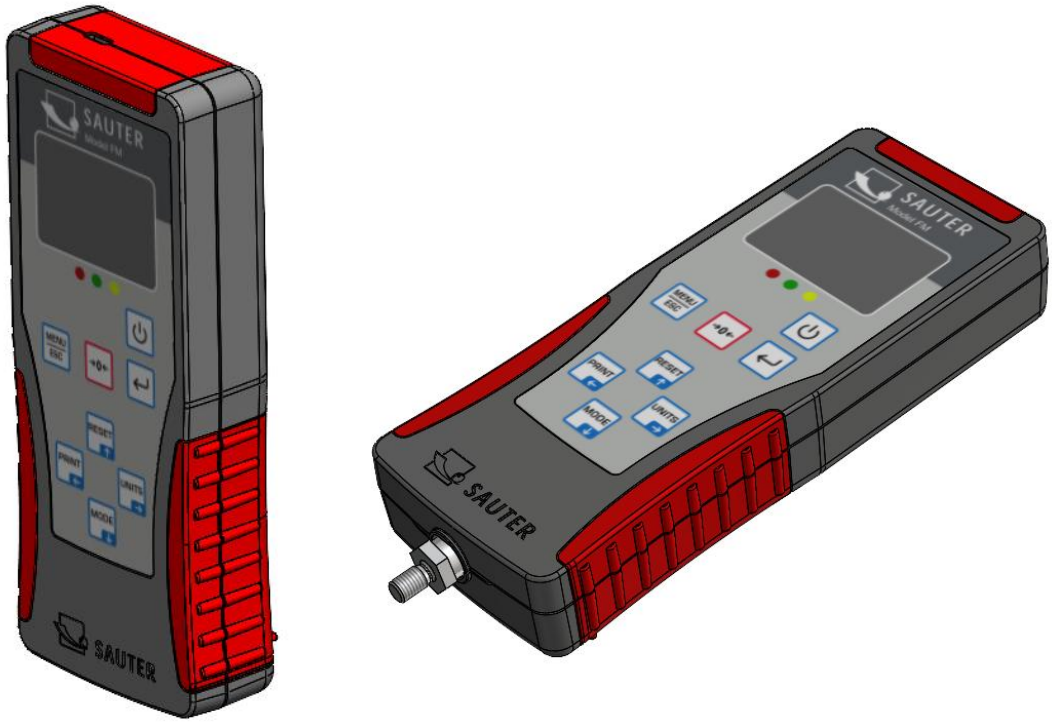
SAUTER

Digital Force Gauge

FE



PROFESSIONAL MEASURING

Original Version

Operating Instructions for Digital Force Gauge

Version 1.0
2026-01
en
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SAUTER

english

SAUTER FE

Digital Force Gauge

Operating Instructions for Digital Force Gauge

Version 1.0 2026-01

Table of Contents:

1 Technical Data ... 2
1.1 Technical data FE with internal load cell up to 500 N ... 2
2 Declaration of Conformity ... 3
3 Device Overview ... 4
3.1 Scope of delivery ... 4
3.2 Components ... 4
3.3 Dimensions ... 5
4 Basic Information (General) ... 6
4.1 Intended Use ... 6
4.2 Improper Use ... 7
4.3 Warranty ... 7
5 Basic warning and safety instructions ... 8
5.1 Follow the instructions in the operating manual ... 8
5.2 Training of personnel ... 8
5.3 Safety ... 8
6 Transport and Storage ... 11
6.1 Note ... 11
6.2 Transport ... 11
6.3 Storage ... 11
6.4 Packaging/Return Shipping ... 11
7 Unpacking and Setup ... 12
7.1 Unpacking ... 12
7.2 Initial Setup ... 12
8 Menu ... 13
8.1 Display ... 13
8.2 Menu navigation ... 14
9 Functions ... 15
9.1 Limit value display: Pass / Fail ... 15
9.2 Flip the display ... 15
9.3 Diagnostics ... 16
9.4 Adjustment ... 17
10 Battery Operation / Power Supply ... 21
11 Test Equipment Monitoring ... 22
12 Maintenance, Servicing, and Disposal ... 23
12.1 Cleaning ... 23
12.2 Maintenance and Repair ... 23
12.3 Disposal ... 23
13 Battery Act ... 24

1 Technical Data

1.1 Technical data FE with internal load cell up to 1000N

Model	FE 5	FE 10	FE 20	FE 50	FE 100	FE 200	FE 500	FE 1K
Type	TFE 5-B	TFE 10-B	TFE 20-B	TFE 50-B	TFE 100-B	TFE 200-B	TFE 500-B	TFE 1K-B
Capacity	5N	10N	20N	50N	100N	200N	500N	1000N
Resolution	0.002 N	0.005 N	0.01 N	0.02 N	0.05 N	0.1 N	0.2 N	0.5 N
Measurement uncertainty	±0.2% of Max (measuring range)							
Operating temperature	15°C to 35°C							
Relative humidity	15% to 80% humidity							
Weight	Approx. 320 g							
Dimensions Display unit (LxWxH)	180x71x31mm							
Thread	M6							
Accessories	Standard attachments, 3-piece set							



2 Declaration of Conformity

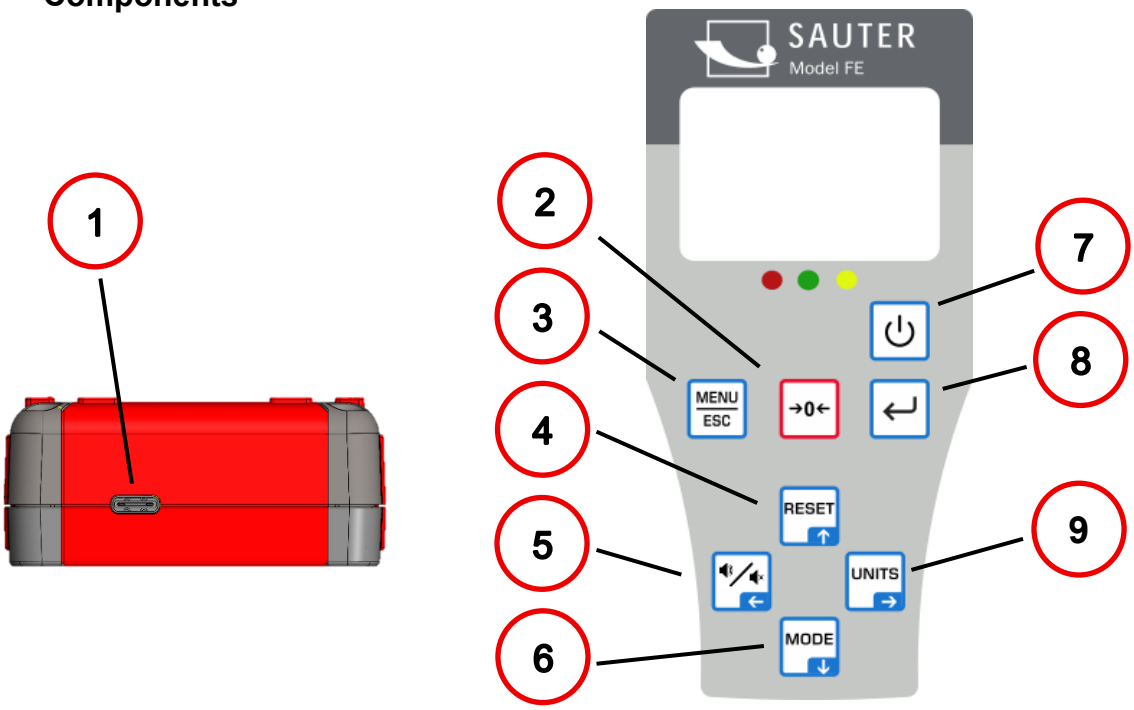
The current EC/EU Declaration of Conformity can be found online at:
https://www.kern-sohn.com/shop/de/DOWNLOADS/

3 Device Overview

3.1 Scope of delivery

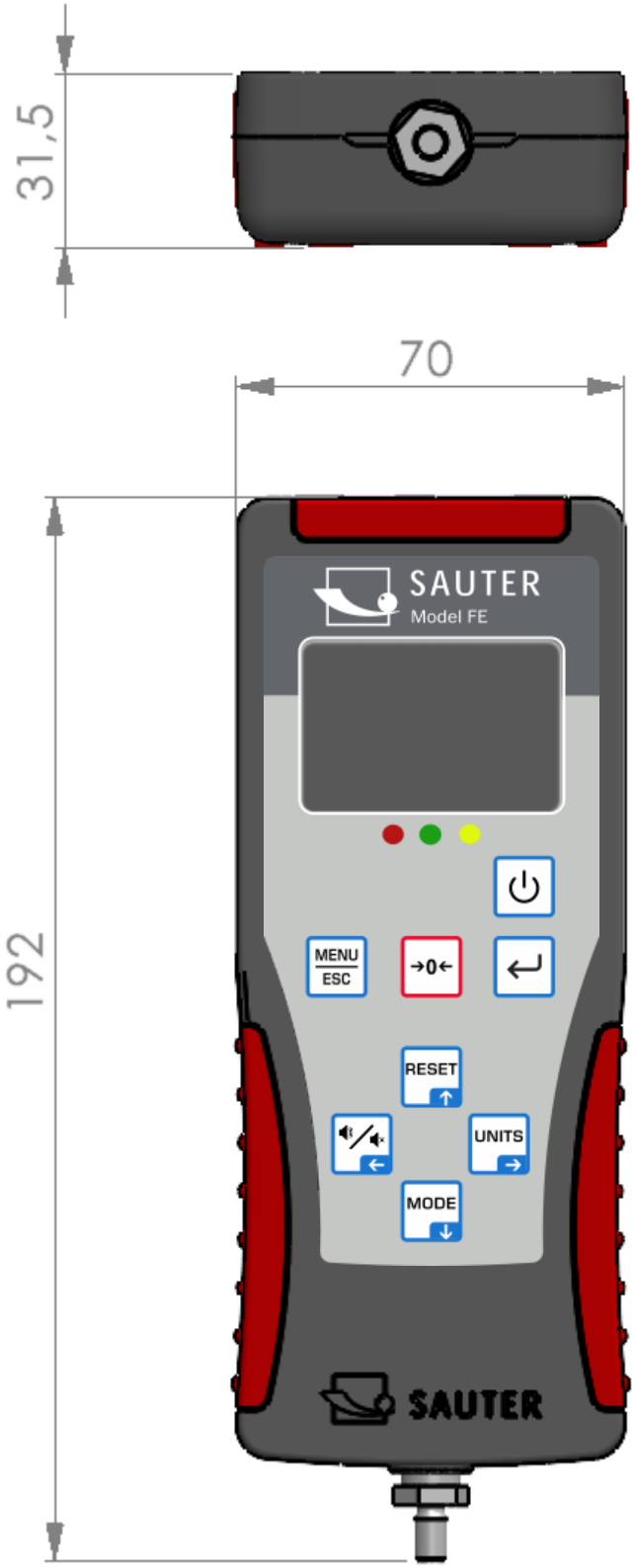
- FE incl. battery
- User manual
- Power adapter incl. USB-C cable
- Carrying case
- 4x M3x12 screws for mounting on Sauter test benches
- Standard attachment, 3-piece set

3.2 Components



	Description	Function
1	**USB-C**	Power supply
2	**Zero**	Zero display
3	**Menu / ESC**	Menu / Back
4	**Reset**	Reset / Navigate up
5	**Sound switch**	Mute / Navigate to the left
6	**Mode**	Track / Peak / Navigation down
7	**Power Switch**	Turn on/off
8	**Enter**	Confirm
9	**Units**	Change units / Navigate to the right

3.3 Dimensions



4 Basic Information (General)

This operating manual uses warning notices to alert you to potential personal injury or property damage in certain situations.

Signal word	Description
DANGER	Failure to follow this warning will result in serious injury, permanent disability (e.g., loss of a limb), or death of the user or third parties
WARNING	Failure to follow this warning may result in serious injury, permanent disability (e.g., loss of a limb), or death of the user or third parties
CAUTION	Failure to follow this warning may result in minor injuries or temporary impairment of the user or third parties (e.g., minor cuts)
NOTE	Failure to follow this warning may result in property damage

Symbols in warning notices :

Symbol	Meaning
Warning signs	Warning signs alert you to hazards that may result in personal injury. The symbol indicates the type of hazard.
	Indicates general hazards or a hazardous area
	Warning of electrical voltage
	Warning regarding flammable substances
	Warning regarding flammable substances

4.1 Intended Use

Use the device exclusively for measuring tensile and compressive forces within the measurement ranges specified in the technical data.
To use the device as intended, use only accessories or replacement parts tested by SAUTER. SAUTER offers optional software and accessories to make the measuring device more versatile in use. Please contact SAUTER or your SAUTER supplier, or visit our website [at www.sauter.eu](http://www.sauter.eu)

4.2 Improper Use

Do not use the measuring device for medical weighing.
If small quantities of the material being measured are removed or added, the “stability compensation” feature in the measuring device may cause incorrect measurement results to be displayed! (Example: Slow outflow of liquids from a container suspended from the measuring cell).
Do not leave a continuous load hanging on the measuring device with an external measuring cell.
Do not use the device in potentially explosive areas or for measurements in liquids and on live parts.
Unauthorized structural modifications, additions, or alterations to the device are prohibited.

4.3 Warranty

The warranty is void if

- Failure to follow our instructions in the operating manual
- Use outside the described applications
- Modification or opening of the device
- Mechanical damage and damage caused by media, liquids, natural wear and tear
- Improper setup or electrical installation
- Overloading of the measuring mechanism
- Improper assembly or electrical installation
- Overloading the measuring cell

5 Basic warning and safety instructions

5.1 Follow the instructions in the operating manual



Carefully read the operating instructions before commissioning/using the device, even if you already have experience with SAUTER devices. Always keep the instructions in close proximity to the device.

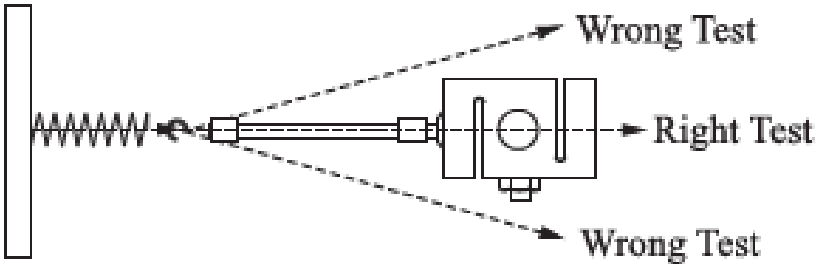
5.2 Training of personnel

The device may only be used by persons who have read and understood the operating instructions, particularly the Safety chapter.

5.3 Safety

Incorrectly performed force measurements can lead to serious personal injury and damage to property and must therefore only be carried out by trained and experienced personnel.
In particular, avoid subjecting the purchased measuring device to forces that exceed the device's maximum load (Max) or that do not act axially through the external force transducer on the device; or when high impact forces act on the measuring device.

Avoid twisting the force transducer, as this could damage it and will in any case reduce measurement accuracy.



Please ensure that the measuring device is not overloaded beyond the specified maximum load (Max), minus any existing tare load. This can damage the measuring device (risk of breakage!).

⚠ WARNING	
	**Read all safety instructions and guidelines.** Failure to follow the safety instructions and guidelines may result in electric shock, fire, and/or serious injury. **Keep all safety instructions and guidelines for future reference.** ● Ensure that no people or objects are ever located under the load, as they could be injured or damaged! ● Do not modify the design of the measuring device. This can lead to incorrect measurement results, safety defects, and destruction of the measuring device ● Do not operate the device in or place it in potentially explosive rooms or areas. ● Do not operate the device in a corrosive atmosphere. ● Do not submerge the device in water. Do not allow liquids to enter the interior of the device. ● The device must only be used in a dry environment and under no circumstances in rain or at a relative humidity exceeding the operating conditions. ● Protect the device from prolonged direct sunlight. ● Do not expose the device to strong vibrations. ● Do not remove any safety signs, stickers, or labels from the device. Keep all safety signs, stickers, and labels in a legible condition ● Do not open the device

⚠ WARNING	
	**Risk of injury from electric shock!** ● There is a risk of short circuit caused by liquids entering the housing! ● Do not submerge the device or its accessories in water. Ensure that no water or other liquids enter the housing. ● Work on electrical components must only be performed by an authorized service provider!

⚠ WARNING	
	**Risk of suffocation!** Do not leave the packaging material lying around. It could become a dangerous toy for children. ● This device is not a toy and should not be left within the reach of children. ● This device may pose a hazard if used improperly or not in accordance with its intended purpose by untrained persons or un ! Pay attention to personnel qualifications !

⚠ WARNING	
	Improper use of rechargeable or non-rechargeable batteries can cause them to catch fire, explode, emit toxic fumes, or





leak corrosive liquid. Therefore, the following applies to all rechargeable and non-rechargeable batteries:
● Protect from fire and heat.
● Never expose to high pressure or microwaves.
● Do not allow them to come into contact with liquids or chemicals.
● Never allow the electrical contacts of rechargeable and non-rechargeable batteries to come into contact with metal objects or short-circuit.
● Never modify rechargeable batteries, batteries, or chargers.
● Batteries must never be recharged.
● Never use or charge a defective, damaged, or deformed battery.

CAUTION

Keep a sufficient distance from heat sources.

NOTE

● To prevent damage to the device, do not expose it to extreme temperatures, extreme humidity, or moisture.
● Do not use harsh cleaners, abrasives, or solvents to clean the device.

6 Transport and Storage

6.1 Note

Improper storage or transport of the device may result in damage. Follow the instructions for transporting and storing the device.

6.2 Transport

Use the carrying case included in the delivery to transport the device and protect it from external influences.

6.3 Storage

When the device is not in use, observe the following storage conditions:

- dry and protected from frost and heat
- in the carrying case, protected from dust
- the storage temperature complies with the technical specifications

6.4 Packaging/Return Shipping

Returns are only possible within the limits of the general terms and conditions Keep all parts of the original packaging for any necessary return shipping.

- Only the original packaging may be used for return shipping.
- Before shipping, disconnect all connected cables and remove any loose or movable parts.
- Reattach any transport securing devices that were provided.
- Secure all parts against slipping and damage.

7 Unpacking and Setup

7.1 Unpacking



In the event of a return, please follow the instructions in the “Packaging/Return Shipping” section

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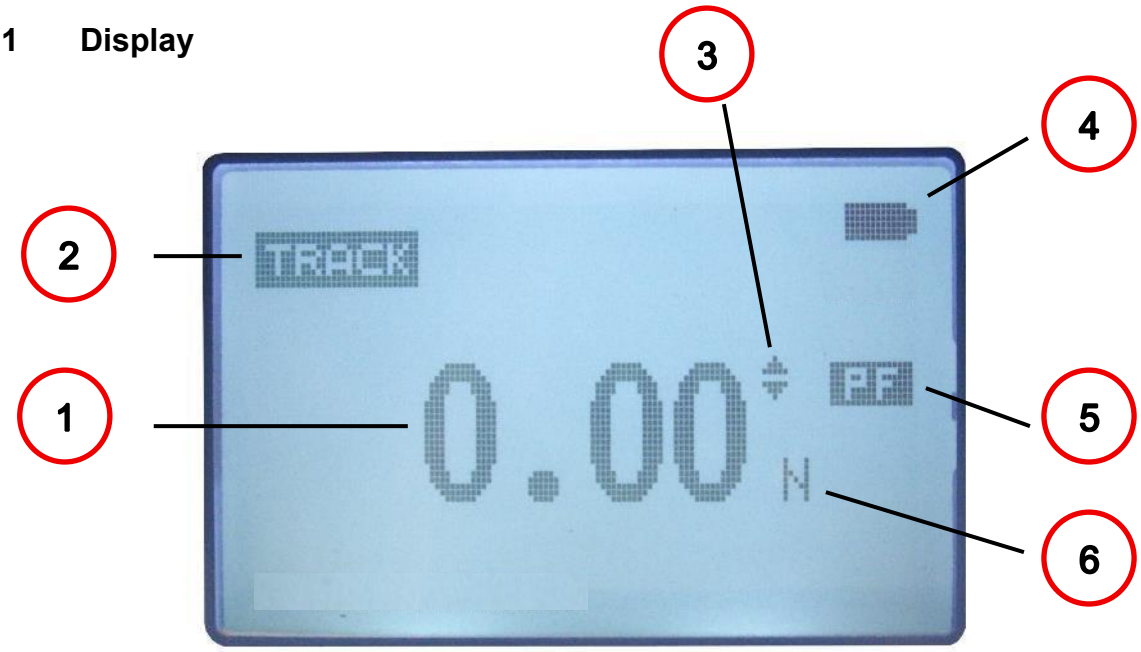
Upon receipt of the device, please check immediately to ensure that no transport damage has occurred and that the outer packaging, the housing, other parts, or even the device itself have not been damaged. If any damage is visible, please notify SAUTER GmbH immediately.

7.2 Initial Setup

To ensure the force gauge functions properly, it must be charged with the charging cable before use.

8 Menu

8.1 Display



Position	Description
1	Measurement result
2	Display mode (Track, Peak)
3	Display of force direction
4	Battery charge level display
5	Pass/Fail criterion activated
6	Display unit for measurement results

8.2 Menu navigation



MENU/ESC:

- Opens the menu
- Pressing the MENU/ESC button in the menu returns you to the previous page

ZERO (Zeroing):



- Resets the display in Track mode (Tare function)

ENTER:



- Confirm the selection in the menu

TON SWITCH



- Turn the acoustic signal on and off

RESET (Clear function):



- Clear the current PEAK value

UNIT (Units of measurement):



- Switch between N, gf, kgf, ozf, lbf, mN

Mode (Mode Change):



Three functions:

- Track mode (continuous measurement)
- Peak- -Tension
- Peak- - Mode-Pressure

ON / OFF:



- On/Off button (press button for approx. 1 s)

9 Functions

9.1 Limit value display: Pass / Fail

LED indicator for pass/fail tests

Color	Function
Red	Exceeding the upper limit
Green	Indicates that the pass/fail criterion has been met
Yellow	Falling below the lower limit

An upper and lower limit value can be programmed. The measuring device compares the measurement result with the limit values and outputs the result as a signal via red or green LEDs.

To set the limit values, see **MENU→ PASS-FAIL**

Use the left arrow key to move the cursor to the desired value. Use the **UP** or DOWN key to change the value. Press and hold one of these keys to scroll. Use the right arrow key to change the unit. Press the ENTER key to save the settings and return to the main menu.
"**PF**" is now visible on the display.
The **PASS-FAIL** option is automatically disabled if both the upper and lower limit values are set to 0 Newton here. The lower value must always be less than the upper value.

9.2 Flip the display

The display can be rotated 180°.

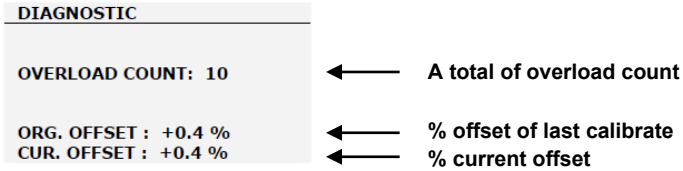
With the device turned off, press and hold the "MENU/ESC" button. Additionally, press the "On/Off" button; this turns on the device and rotates the display.

9.3 Diagnostics

This function is used to check the load cell. If you suspect that the load cell has been overloaded, you can immediately determine its status using this function.

To do this, place the device in a horizontal position on a flat surface and access the main menu. To enter the DIAGNOSTIC menu, press the MENU/ESC button. Use the **UP** or DOWN button to move the cursor to DIAGNOSTIC and confirm with the ENTER button. You are now on the DIAGNOSTIC page.

Pressing the ESC button returns you to the main menu page.



If the percentage deviation is between 5% and 10%, please contact us to have the load cell replaced. These values are provided for reference only. The actual need for calibration or replacement of the load cell varies depending on its individual characteristics.

9.4 Adjustment

Introduction:

These instructions describe the adjustment procedure; note that some programming modes are password-protected.
Important! During the adjustment procedure, all weights used to load the sensor must be calibrated.

Temperature Control:

Before handing over the measuring device to the calibration laboratory, the device must be inspected for any damage and checked against the order specifications.
Before starting the calibration, the measuring device must be allowed to acclimate for at least 2 hours until it reaches the calibration laboratory's operating temperature.

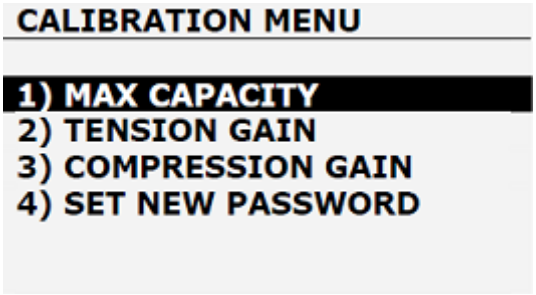
Calibration:

1. Turn on the measuring device
2. Select the main menu by pressing the **MENU** button, then use the **UP** and **DOWN** cursor keys to select the calibration menu option. Then press the **ENTER** button. The ENTER PASSWORD window will appear on the screen.

ENTER PASSWORD
4 DIGITS
PASSWORD: 0000*

***** Default password = 7780

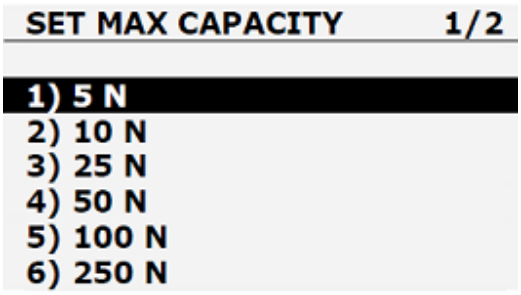
Use the **UP** and **DOWN** arrow keys to scroll up or down through the options. Use the **LEFT** and **RIGHT** arrow keys to select options to the left or right. To change the digit, press and hold the corresponding key for a moment.
Press the **ENTER** key to confirm the password. If the password is correct, the calibration menu window appears on the display.



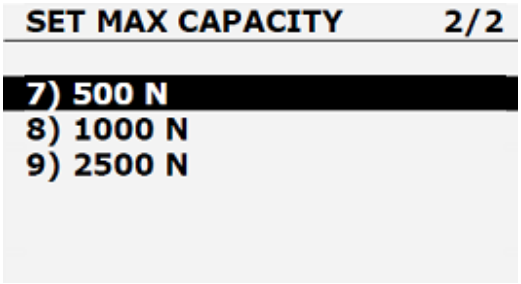
CALIBRATION MENU

1) MAXIMUM LOAD
2) STRESS INCREASE
3) COMPRESSION INCREASE
4) SET NEW PASSWORD

3. Select the correct weight value for the respective measuring device. To set the load, use the **UP** [up] and **DOWN** [down] arrow keys to select the MAX CAPACITY [max. load] menu function, and then press the **ENTER** key. The menu window for setting the maximum load appears on the screen.



MAX. LOAD SETTING 1/2



MAX. LOAD SETTING 2/2

4. Use the **UP** [up] and **DOWN** [down] arrow keys to select the maximum load, press the selected value, and hold it for a moment.
   Press the **ENTER** key to save the selected value. Then return to the calibration menu.

5. Calibration in the tension direction: Use the **UP** [up] and **DOWN** [down] arrow keys in the calibration menu to select the TENSION GAIN menu function, then press the **ENTER** key. A menu window for tension gain appears on the display.



5.1. Zero voltage

- Set up the measuring device along with the necessary accessories to perform the tension calibration
- Apply a force equal to 100% of the measuring device's capacity to the weight
- Remove the load and leave the device in place
- As soon as the display stabilizes, press the **ZERO** button to save the zero reading

5.2. Maximum tension

- Apply a load of 100% of the meter's capacity
- Use the **UP** [up] and **DOWN** [down] arrow keys, as well as **the RIGHT** and **LEFT keys**, to calibrate the tension increase until the meter displays the maximum tension reading
- Press the **ENTER** key to save the results for the entire voltage range.

6. Compression calibration: In the calibration menu, use the **UP** [up] and **DOWN** [down] arrow keys to select the COMPRESSION GAIN menu function, then press the **ENTER** key. A menu window for compression gain appears on the display.



6.1. Zero compression

- Set up the measuring device along with the necessary accessories to perform the compression calibration
- Apply a force equal to 100% of the measuring device's capacity to the weight
- Remove the load and leave the device in place
- As soon as the reading stabilizes, press the **ZERO** button to save the zero reading

6.2. Maximum Compression

- Apply a compression force of 100% of the gauge capacity
- Use the **UP** [up], **DOWN** [down], **RIGHT**, and **LEFT** arrow keys to calibrate the compression gain until the meter displays the maximum compression reading
- Press the **ENTER** key to save the results for the entire compression scale.

7. After successful calibration, remove all accessories from the meter and place the meter face down on a flat surface.
   Select the menu window for voltage gain, press the **ZERO** button to obtain the primary calibration offset, date, and time, and to reset the overload counter.

10 Battery Operation / Power Supply

⚠ WARNING



Fire and explosion hazard due to improper charging or a defective battery



Fire or explosion can cause serious injury

- ⇨ Be sure to follow the instructions regarding batteries in the Safety chapter.
- ⇨ Observe national and international transport regulations for devices with a built-in lithium-ion battery.
- ⇨ Do not replace defective batteries yourself! Contact SAUTER or an authorized dealer directly.

This device is equipped with a built-in rechargeable lithium-ion battery. Please use the original battery and do not substitute other batteries to avoid damage to the device or other malfunctions.

- Nominal voltage 5 V
- Capacity 750 mAh

The battery should be fully charged before first use. Use the included power adapter for this purpose.

11 Test Equipment Monitoring

As part of quality assurance, the metrological properties of the measuring instrument and any test weights must be checked at regular intervals. The responsible user must define a suitable interval as well as the type and scope of this inspection.
Information regarding the calibration of measuring instruments and the necessary test weights is available on the SAUTER website (www.sauter.eu). The weights and measuring instruments can be quickly and affordably checked and calibrated at KERN's DAkkS-accredited laboratory (traceability to the national standard).

12 Maintenance, Servicing, and Disposal



Disconnect the device from the power supply before performing any maintenance, cleaning, or repair work.

12.1 Cleaning

Clean the device with a damp, soft, lint-free cloth. Ensure that no moisture penetrates the housing. Do not use sprays, solvents, alcohol-based cleaners, or abrasive cleaners; use only clean water to dampen the cloth.

12.2 Maintenance and Repair

Do not make any modifications to the device or install any replacement parts. Contact the manufacturer for repairs or device inspections.

12.3 Disposal



Old devices and accessories do not belong in household waste.

The operator must dispose of the packaging and the device in accordance with applicable national or regional laws at the user's location.

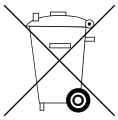
The device consists of various components and materials, such as:

- Electronic components (circuit boards, electrical wires)
- Plastic (housing)
- Metal

Improper disposal of the device can have harmful effects on people and the environment.

Proper and environmentally responsible disposal can prevent harmful effects and allow for the recovery of raw materials.

Disposal of rechargeable and non-rechargeable batteries:



Rechargeable and non-rechargeable batteries do not belong in household waste.

The operator must dispose of rechargeable and non-rechargeable batteries in accordance with applicable national or regional laws at the user's location.

13 Battery Act

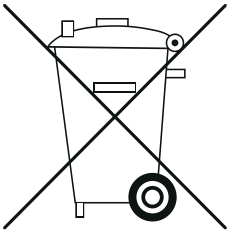
Note in accordance with the Battery Act (BattG):

INFORMATION

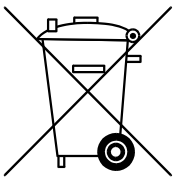
- The following information applies to Germany.

In connection with the sale of batteries and rechargeable batteries, we, as a retailer, are required by the Battery Act to inform end users of the following:

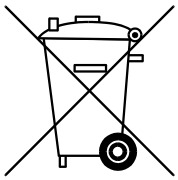
- End consumers are legally obligated to return used batteries and rechargeable batteries.
- Batteries and rechargeable batteries can be returned free of charge to municipal collection points or retailers after use. The batteries/rechargeable batteries must have reached the end of their normal service life; otherwise, precautions must be taken to prevent short circuits.
- The return option is limited to batteries and rechargeable batteries of the type we currently carry or have carried in our product range, as well as to the quantity that end consumers typically dispose of.
- A crossed-out trash can symbol means that you must not dispose of the batteries or rechargeable batteries in household waste under any circumstances. Old batteries or rechargeable batteries may contain hazardous substances that can harm people and the environment if not disposed of properly.



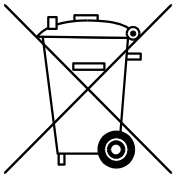
- Hazardous batteries are marked with a symbol consisting of a crossed-out trash can and the chemical symbol (Cd = cadmium, Hg = mercury, or Pb = lead) of the heavy metal responsible for the classification as hazardous.



Cd



Hg



Pb