

Digital Force Gauge SAUTER FS

PREMIUM
★★★



Measurement of forces in different tensile or compression directions possible with only one measuring device



Supplied in a high-quality and robust system case (systainer® T-LOC) including plug-in power supply and USB cable type C



Tip: Order the practical system case (systainer® T-LOC) for storing and transporting of accessories, clamps, sensors, etc. at the same time, SAUTER FS TKZ, see *Accessories*

Premium force gauge with integrated load cell (optional) and connection possibility for up to 4 external load cells

Use with integrated load cell

The SAUTER FS premium force gauge has an load measuring cell for tensile and compressive force applications. Either mobile for rapid testing or stationary integrated into a test stand or production line, the multifunction display allows all the values recorded to be read off at a glance in real time. Via the integrated interface, the data can be sent to a PC or laptop for further processing.

Use with external load cells

The SAUTER FS premium force gauge is compatible with all SAUTER strain gauge measuring cells, see *Measuring cells*. Up to 4 external measuring cells can be connected simultaneously.



Can be mounted on all SAUTER test stands, illustration shows optional accessories, as well as the SAUTER TVL-XS manual test stand



Simultaneous measurement on up to four channels. External sensors with sensor data memory, optionally available, see *Measuring Cells*



Compact force gauge with internal measuring cell (up to max. 500 N) for fast and mobile force measurements. Illustration shows optional accessories, SAUTER AE 500 screw tension clamp

Digital Force Gauge SAUTER FS

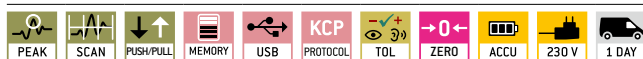
Features	Technical data	Accessories
<ul style="list-style-type: none"> • 3,5" touchscreen • Standard version with 2 or 4 measuring channels for external force sensors (subsequently expandable from 2 to 4) • An internal load cell is possible (is deactivated if an external load cell is connected) • Suitable for 4-wire and 6-wire sensors with strain gauges • Two-point adjustment with weights or numerical adjustment possible • The specific data of an external sensor are stored directly in the connector • USB interface for data transfer and power supply as standard • Internal device memory (16 GB) • Adjustable SI units: kg, N, kN, mN, MN, Nm, kNm, mNm • Tolerance function • Track function for continuous measurement display • Peak value measurement • Mountable on all SAUTER test stands 	<ul style="list-style-type: none"> • High 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 • Measurement accuracy: - with internal load cell: 0.1% of [Max] - with external load cell: among other things from the load cells used • Overall dimensions WxDxH 71x31x180 mm • Overload protection: 150% of [Max] with internal measuring cell • Thread on load receptor: M6 (outer) • 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. 0,40 kg 	<ul style="list-style-type: none"> • For subsequent expansion to 4 measuring channels: A/D converter module, only for FS 2 and FS 2-xxx models, SAUTER FS 34 • Stainless steel handle bar with rubber grip, SAUTER AFK 02 • Transport case, e.g. for accessories, SAUTER FS TKZ • Standard attachments, SAUTER AC 43 • Hook for tensile and fracture testing up to 500 N, thread: M6, 1 item, SAUTER AC 49 • Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-2.0, see internet • Suitable load cells see page 98 et seq. • Holders for object fixation and other accessories, please see internet or see page 39 et seq.

Optional calibration, see page 115
 Calibration is recommended for each measuring cell!
 Assembly and adjustment of measuring cell, connector and sensors must be ordered separately, see table below, SAUTER FS 401 - FS 408

Order example SAUTER FS force gauge with 2 load cells:

1x	FS 2-500	2-channel force gauge with integrated load cell for tension/compression force measurements
1x	963-361	DAkkS calibration certificate tension/compression force up to 500 N
1x	CO 100-Y1	Miniature compression load cell up to 1 kN
1x	FS 403	Two-point adjustment up to 2 kN, incl. plug and memory for SAUTER FS
1x	963-262	DAkkS calibration certificate compression force up to 2 kN
1x	CS 500-3P2	Stainless steel "S" load cell for tension/compression force up to 5 kN
1x	FS 404	Two-point adjustment up to 5 kN, incl. connector and memory for SAUTER FS
1x	963-363	DAkkS calibration certificate tension/compression force up to 5 kN

STANDARD



OPTION



Service required for use with external sensors:

Model	Measuring range internal load cell	Readability internal load cell	Internal load cell	Number of measuring channels	Model	Adjustment of optional, external sensors	Measuring range [Max] kN
SAUTER	[Max] N	[d] N			SAUTER		
FS 2	-	-	-	2	FS 401	Numeric*	-
FS 2-20	20	0,004	•	2	FS 402		0,5
FS 2-50	50	0,01	•	2	FS 403		2
FS 2-100	100	0,02	•	2	FS 404		5
FS 2-200	200	0,04	•	2	FS 405	Two-point	20
FS 2-500	500	0,1	•	2	FS 406		50
FS 4	-	-	-	4	FS 407		120
FS 4-20	20	0,004	•	4	FS 408		250
FS 4-50	50	0,01	•	4			
FS 4-100	100	0,02	•	4			
FS 4-200	200	0,04	•	4			
FS 4-500	500	0,1	•	4			

*only for sensors > 250 kN

CAL EXT
Adjusting program (CAL)
 For quick setting of the instrument's accuracy. External adjusting weight required

CAL BLOCK
Calibration block
 Standard for adjusting or correcting the measuring device

PEAK
Peak hold function
 Capturing a peak value within a measuring process

SCAN
Scan mode
 Continuous capture and display of measurements

PUSH/PULL
Push and Pull
 The measuring device can capture tension and compression forces

SCALE
Length measurement
 Captures the geometric dimensions of a test object or the movement during a test process

FOCUS
Focus function
 Increases the measuring accuracy of a device within a defined measuring range

MEMORY
Internal memory
 To save measurements in the device memory

RS 232
Data interface RS-232
 Bidirectional, for connection of printer and PC

PROFIBUS
Profibus
 For transmitting data, e.g. between scales, measuring cells, controllers and peripheral devices over long distances. Suitable for safe, fast, fault-tolerant data transmission. Less susceptible to magnetic interference

PROFINET
Profinet
 Enables efficient data exchange between decentralised peripheral devices (balances, measuring cells, measuring instruments etc.) and a control unit (controller). Especially advantageous when exchanging complex measured values, device, diagnostic and process information. Savings potential through shorter commissioning times and device integration possible

USB
Data interface USB
 To connect the measuring instrument to a printer, PC or other peripheral devices

BT
Bluetooth* data interface
 To transfer data from the balance/measuring instrument to a printer, PC or other peripherals

WIFI
WIFI data interface
 To transfer data from the balance/measuring instrument to a printer, PC or other peripherals

IR
Data interface infrared
 To transfer data from the measuring instrument to a printer, PC or other peripheral devices

SWITCH
Control outputs (optocoupler, digital I/O)
 To connect relays, signal lamps, valves, etc.

ANALOG
Analogue interface
 To connect a suitable peripheral device for analogue processing of the measurements

DUAL
Analogue output
 For output of an electrical signal depending on the load (e.g. voltage 0 V - 10 V or current 4 mA - 20 mA)

LAN
Statistics
 Using the saved values, the device calculates statistical data, such as average value, standard deviation etc.

SOFTWARE
PC Software
 To transfer the measurement data from the device to a PC

PRINT
Printer
 A printer can be connected to the device to print out the measurement data

LAN
Network interface
 For connecting the scale/measuring instrument to an Ethernet network

KCP PROTOCOL
KERN Communication Protocol (KCP)
 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

GLP PRINTER
GLP/ISO record keeping
 of measurement data with date, time and serial number. Only with SAUTER printers

UNIT
Measuring units
 Weighing units can be switched to e.g. non-metric. Please refer to website for more details

TOL
Measuring with tolerance range (limit-setting function)
 Upper and lower limiting can be programmed individually. The process is supported by an audible or visual signal, see the relevant model

IP
Protection against dust and water splashes IPxx
 The type of protection is shown in the pictogram cf. DIN EN 60529:2000-09, IEC 60529:1989 +A1:1999+A2:2013

ZERO
ZERO
 Resets the display to "0"

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

ACCU
Rechargeable battery pack
 Rechargeable set

230 V
Plug-in power supply
 230V/50Hz in standard version for EU. On request GB, AUS or US version available

230 V
Integrated power supply unit
 Integrated, 230V/50Hz in EU. More standards e.g. GB, AUS or US on request

ELECTRO
Motorised drive
 The mechanical movement is carried out by an electric motor

STEPPER
Motorised drive
 The mechanical movement is carried out by a synchronous motor (stepper)

FAST-MOVE
Fast-Move
 The total length of travel can be covered by a single lever movement

M
Conformity assessment
 Models with type approval for construction of verifiable systems

DAkkS +3 DAYS
DAkkS calibration possible
 The time required for DAkkS calibration is shown in days in the pictogram

ISO +4 DAYS
Factory calibration (ISO)
 The time required for factory calibration is specified in the pictogram

1 DAY
Package shipment
 The time required for internal shipping preparations is shown in days in the pictogram

2 DAYS
Pallet shipment
 The time required for internal shipping preparations is shown in days in the pictogram

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