MEASURING TECHNOLOGY & TEST SERVICE 2023

FORCE MEASUREMENT



Digital force gauge SAUTER FL-M





Powerful digital force gauge with graphic assisted display for tensile and compressive force measurements with external load cell

Features

- Premium force gauge with external load cell, tension loops included
- Turnable display with backlight
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Metal housing for durable use in harsh environmental conditions
- Can be mounted on all SAUTER test stands from 1 kN
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, in pull and push direction. The process is supported by a visual signal
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2V)
- USB data interface, as standard
- Selectable measuring units: N, kN, kgf, ozf, lbf
- Delivered in a robust carrying case

Technical data

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Overall dimensions W×D×H 175×75×30 mm
- Dimensions load cell W×D×H
- FL 2K: 76,2×51×19 mm
- FL 5K, 10K, 20K: 76,2×51×28 mm
- Thread: M12
- Rechargeable battery pack integrated, as standard, operating time up to 10 h without backlight, charging time approx. 8 h
 Net weight approx. 0,55 kg

Accessories

- 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
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST

Force-displacement only in combination with SAUTER LD, SAUTER AFH LD

Force-displacement only in combination with SAUTER LB, SAUTER AFH FD

- USB cable, included in delivery, can be ordered separately, USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01
- RS-232 adapter cable, SAUTER FL-A04
- Holders for object fixation and other accessories, please see page 40 onwards or our website

STANDARD	OP	TION		
	USB ANALOG ZERO	ACCU 230 V 1 DAY		DAkks ISO +4 DAYS +4 DAYS

Model	Measuring range	Readout	Option DAkkS calibration certificate (≤ 5 kN)/Factory calibration certificate (> 5 kN)		
			Tensile force	Compressive force	Tensile/Compressive force
SAUTER	[Max] N	[d] N	KERN	KERN	KERN
FL 2K	2000	1	963-162	963-262	963-362
FL 5K	5000	2	963-163	963-263	963-363
FL 10K	10000	5	961-164	961-264	961-364
FL 20K	20000	10	961-164	961-264	961-364

Further calibration options on request

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SAUTER PICTOGRAMS

required



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



Calibration block: Standard for adjusting or correcting the measuring device



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

Scan mode: _∕\/~

Continuous capture and display SCAN of measurements



Push and Pull: The measuring device can capture

tension and compression forces



Length measurement:

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



Focus function:

Increases the measuring accuracy of a device within a defined measuring range



Internal memory:

To save measurements in the device memory



Data interface RS-232:

Bidirectional, for connection of printer and PC



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:

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



Data interface USB:

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



Bluetooth* data interface:

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

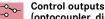


WLAN data interface:

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





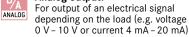


(optocoupler, digital I/O): SWITCH To connect relays, signal lamps, valves, etc.



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

Analog output:



Statistics: how

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



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

Printer: 님

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



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



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/ISO record keeping:

Of measurement data with date, time and serial number. Only with SAUTER printers



Measuring units:

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



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



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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

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ZERO Battery operation: Ready for battery operation. The battery type is specified for each device BATT Rechargeable battery pack: Rechargeable set ACCU

ZERO:

Resets the display to "0"

→0+



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Plug-in power supply:

230V/50Hz in standard version for EU. On request GB, AUS or USA version available



230 V More standards e.g. GB, AUS or USA on request



Motorised drive: The mechanical movement is carried

out by a electric motor



Motorised drive: The mechanical movement is carried

Fast-Move:

2 The total length of travel can be covered by a single lever movement

out by a synchronous motor (stepper)



Verification possible:

Models with type approval for construction of verifiable systems



DAkkS calibration possible:

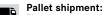
The time required for DAkkS calibration is shown in days in the pictogram

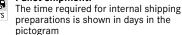


Factory calibration:

The time required for factory calibration is specified in the pictogram

The time required for internal shipping preparations is shown in days in the pictogram





Package shipment: 1 DAY