# **SAUTER CATALOGUE 2021**

# Digital force gauge SAUTER FL-M







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

## Features

- Premium force gauge with external measuring cell, tension loops included in delivery
- Turnable display with backlight
- Peak-Hold function to capture peaks (measurement result will be "frozen" for a short time) or Track function mode for a continuous measurement indication
- Metal housing for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- 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 an visual signal.
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2 V)
- Data interface USB standard

- Data interface RS-232 standard, only for connection to the printer
- Selectable measuring units: N, kN, kgf, ozf, lbf
- Delivered in a robust carrying case

## Technical data

- Internal measuring frequency: 1000 Hz
- 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 76,2×51×19 mm
- Thread: M12
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 1,5 kg

### Accessories

- Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel<sup>®</sup>, SAUTER AFI-1.0
- Data transfer software with graphic display of the measurement process, 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, as standard, can be reordered, SAUTER FL-A01
- RS-232 adapter cable, SAUTER FL-A04

STANDARD	OPTION		
PEAK PUSH/PULL MEMORY RS 232	2 USB ANALOG PRINT		1 DAY SOFTWARE DARKS SOFTWARE +4 DAYS

Model	Measuring range	Readout	Option DAkkS calibration certificate (≤ 5 kN)/Factory calibration certificates (> 5 kN)					
			Tensile force		Compressive force		Tensile/Compressive force	
	[Max]	[d]						
SAUTER	N	N	KERN		KERN		KERN	
FL 2K	2500	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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### Pictograms



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



Calibration block: Standard for adjusting or correcting

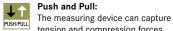
the measuring device

### Peak hold function: PEAK

Capturing a peak value within a measuring process



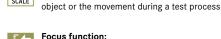
Scan mode: Continuous capture and display of measurements



tension and compression forces



Length measurement: Captures the geometric dimensions of a test



FOCUS

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:

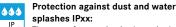
To connect the measuring instrument to a printer, PC or other peripheral devices

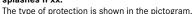
# ℅

Bluetooth\* data interface: To transfer data from the balance/measuring

instrument to a printer, PC or other peripherals









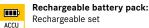
ZERO: Resets the display to "0"

Battery operation:



Ready for battery operation. The battery type is

specified for each device



Rechargeable set

230 V



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



Power supply:

Integrated, 230V/50Hz in EU. More standards e.g. GB, AUS or USA on request



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



### Motorised drive:

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



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### Fast-Move:

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



### Verification possible:

The time required for verification is specified +3 DAYS in the pictogram



### DAkkS calibration possible:

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

# **ISO** +4 DAYS

Factory calibration: The time required for factory calibration is specified in the pictogram



### Package shipment: The time required for internal shipping

preparations is shown in days in the pictogram

### Pallet shipment:



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

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Your KERN specialist dealer:



#### 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

For connecting the scale/measuring instrument

GLP/ISO record keeping:

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

WLAN data interface:

Data interface Infrared:

To connect relays, signal lamps,

To transfer data from the balance/measuring

instrument to a printer, PC or other peripherals

To transfer data from the measuring instrument

to a printer, PC or other peripheral devices

Control outputs (optocoupler, digital I/O):

To connect a suitable peripheral device for

analogue processing of the measurements

For output of an electrical signal depending

Using the saved values, the device

calculates statistical data, such as

To transfer the measurement data

to print out the measurement data

from the device to a PC

Network interface:

to an Ethernet network

average value, standard deviation etc.

A printer can be connected to the device

on the load (e.g. voltage 0 V - 10 V or current

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SWITCH

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KCP

PROTOCOL

valves, etc.

Analogue interface:

Analog output:

4 mA – 20 mA) Statistics:

PC Software:

Printer:

### Measuring units:

Weighing units can be switched to e.g. non-metric at the touch of a key. 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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