# Ultrasonic thickness gauge SAUTER TO-EE







SAUTER



# Material thickness gauge for ultrasonic material thickness testing in Echo-Echo principle

## Features

STANDARD

∽∧⊱

SCAN

MEMORY

- Premium thickness gauge device using ultrasonic technology: New NT measuring technology generation with automatic sensor adjustment (V-path correction for improved accuracy and more rapid display speed)
- Dual measuring modes to determine material thickness:
  - Pulse-Echo mode (up to 600 mm)
  - Echo-Echo mode (up to 100 mm)
- Echo-Echo measurements: Determining the actual thickness of materials regardless of any existing coating, such as, for example, paint or an anti-corrosion coating on the base metal. In this way, the wall thickness of pipes, for example, can be determined in a non-destructive manner, without having to remove the coating and the measurement can be shown on the display, with the adjustment for the coating thickness already taken into account
- Can be used on these materials, as well as others: Metals, plastics, ceramics, composite materials, epoxy, glass and other materials
- High-precision mode: Readout accuracy can be switched from 0.1 mm to 0.01 mm
- IP Premium display with colour TFT display (320×240) with adjustable brightness so that it can be read easily in any environmental conditions

USB

ZERO

TOL

BATT

- Large internal data memory for up to 100 data sets each with 100 individual values
- Energy-saving operation with 2× AA batteries and an operating time of at least 30 hours, adjustable power-off time (sleep mode) and adjustable display switch-off (standby mode)
- USB data output for easy data download from the device memory to the PC as standard
- Adjustment options: 0-point adjustment, 1-point adjustment, 2-point adjustment by measuring material of different thicknesses
- 3 different measurement modes with standard measuring (single measurement), scan mode (for continuous measurement and display of the ACTUAL value, the MIN and MAX value of the measuring sequence) and DIFF mode with calculation of the difference between the ACTUAL measured value and a manually defined nominal thickness
- Limit alarm function: Upper and lower limit adjustable. The measurement process is supported by an audible and visual signal
- Menu languages: DE, EN, FR, ES, IT
- Date and time can be adjusted. It is possible to store the measurement values with a time stamp
- Standard measuring probe SAUTER: ATU-US12
  included with delivery
- 3 Delivered in a robust carrying case

# Technical data

- Measuring precision: 0,4 % of [Max]  $\pm$  0,04 mm
- Dimensions W×D×H 70×31×130 mm
- Battery operation, batteries standard 2× 1.5 V AA, AUTO-OFF function to preserve batteries
- Net weight approx. 245 g
- Maximum thickness of coating (paints, lacquers or similar coatings which shall be eliminated): 3 mm
- Interface cable FL-A01 (for use of the software) included

#### Accessories

- External sensor, 5 MHz, Ø 10 mm, for echo-echo measuring, SAUTER ATU-US12
- Ultrasound contact gel, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03
- Software BalanceConnection, flexible recording or transfer of measurements, particularly to Microsoft<sup>®</sup> Excel or Access as well as transfer of this data to other Apps and programs. The displayed result can therefore be converted to any format for communication with the different user programs, such as, for example, e.g. SAP, for details see internet, KERN SCD-4.0
- Further sensors on request
- Note: Further details and plenty of further accessories see internet

Model	Measuring range Echo-Echo	Measuring range Pulse-Echo		Speed of sound	Sensor		tion tion certificates
SAUTER	mm	mm	[d] mm	m/s		KERN	
TO 100-0.01EE	3-100	0,7-600	0,1/0,01	100-19999	5 MHz   Ø 10 mm	961-113	

SAUTER GmbH · c/o KERN & SOHN GmbH · Ziegelei 1 · 72336 Balingen · Germany · Tel. +49 7433 9933-0 · www.sauter.eu · info@sauter.eu

OPTION

# **SAUTER CATALOGUE 2022**

#### 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: Capturing a peak value within a

measuring process



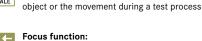
Scan mode: Continuous capture and display of measurements



The measuring device can capture tension and compression forces



Length measurement: Captures the geometric dimensions of a test



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



FOCUS

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:

Your KERN specialist dealer:

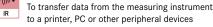
To transfer data from the balance/measuring instrument to a printer, PC or other peripherals



# WLAN data interface:

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

#### Data interface Infrared: • (((() •



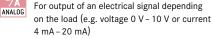


Control outputs (optocoupler, digital I/O): To connect relays, signal lamps, valves, etc.



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

# Analog output:



Statistics:

1m Using the saved values, the device calculates STATISTIC statistical data, such as average value, standard deviation etc.



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



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

### Network interface:



For connecting the scale/measuring 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: GLP

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

#### Measuring units:

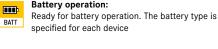
 ${\mathcal C}$ Weighing units can be switched to e.g. non-metric. UNIT Please refer to website for more details



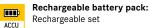
Measuring with tolerance range (limit-setting function):

Upper and lower limiting can be programmed individually. The process is supported by an audible or visual signal, see the relevant model

\*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by KERN & SOHN GmbH is under license. Other trademarks and trade names are those of their respective owners.



ZERO:



Rechargeable set

Resets the display to "0"

<u> </u>
230 V

666

IP

+04

ZERO

Plug-in power supply:

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

SAUTER

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



Integrated power supply unit:

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



The mechanical movement is carried ELECTRO out by a electric motor

# Motorised drive:

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



STEPPER

#### Fast-Move:

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



# Verification possible:

The time required for verification is specified in the pictogram

DAkkS +3 DAYS

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



Factory calibration:



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

+4 DAYS specified in the pictogram

The time required for factory calibration is