Ultrasonic Thickness Gauge SAUTER TO-EE

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

Features

- 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 measurement: 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, for example of pipes, 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 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
- 1 Premium display with colour TFT display (320×240 mm) with adjustable brightness so that it can be read easily in any environmental conditions
- 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)
- 2 USB data output for easy data download from the device memory to the PC, as standard
- Triple-calibration mode: Automatic 0-point adjustment, 1-point adjustment at a specified material thickness, 2-point precision adjustment with two specified material 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 head SAUTER ATU-US12 included with delivery
- Scope of delivery: Operating instructions, batteries, external measuring head (⌀ 10 mm) and ultrasound contact gel
- 3 Delivered in a robust carrying case
- Interface cable SAUTER FL-A01 (for use of the software) included

Technical data

- Measuring precision: 0,4 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 31×69×130 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

Accessories

- External measuring head, 5 MHz, ⌀ 10 mm, for echo-echo measuring, SAUTER ATU-US12
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03
- Software BalanceConnection, for flexible recording or transmission of measured values, in particular also to Microsoft® Excel or Access as well as transfer of this data to other Apps and programs, for more details see internet, scope of supplies: 1 CD, 1 license, KERN SCD-4.0
- Other sensors on request
- Further details and plenty of further accessories see internet

STANDARD

OPTION

Modell SAUTER	Measuring range Echo-Echo mm	Measuring range Puls-Echo mm	Readout [d] mm	Measuring head	Sound velocity m/sec	Option Factory Calibration Certificate KERN
TO 100-0.01EE	3 – 100	0,7 – 600	0,01	5 MHz | ⌀ 10 mm	200 – 19999	961-113

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

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

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

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

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

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

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)

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

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

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

Measuring units
Weighing units can be switched to e.g. 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

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
Resets the display to "0"

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

Rechargeable battery pack
Rechargeable set

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

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

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

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

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

Conformity assessment
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 (ISO)
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