# Ultrasonic thickness gauges SAUTER TN-EE





SAUTER

# Hand-held measuring device for ultrasonic material thickness testing in Echo-Echo principle

# Features

- External sensor
- Data interface USB, standard
- Scan mode (10 measurements per sec.) or single point measuring mode possible
- Internal memory for up to 20 files
- (with up to 100 values per file)Selectable measuring units: mm, inch
- Two measuring modes to determine material thickness:
- Pulse-Echo mode
- Echo-Echo mode
- Echo-Echo measuring: Determining the actual thickness of materials irrespective of any coating which might be present. 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
- Echo-Echo measurements are only possible with the measuring head included as part of the delivery (ATU-US12, see accessory)
- 1 Delivered in a robust carrying case

#### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Dimensions W×D×H 74×32×150 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

# Accessories

- Data transfer software, USB interface cable included, SAUTER ATU-04
- 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 Note: All following Pulse-Echo sensors can

only be used in Pulse-Echo mode, not in Echo-Echo mode

- External sensor (Pulse-Echo), 2,5 MHz, Ø 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01
- External sensor (Pulse-Echo), 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75-80 mm (steel), SAUTER ATU-US02
- External sensor (Pulse-Echo), 5 MHz,  $\phi$  10 mm, SAUTER ATU-US09
- External sensor (Pulse-Echo), 5 MHz,
  Ø 10 mm, transducer at an angle of 90°,
  SAUTER ATU-US10

STANDARD	)					OPTION	
+		•	→0←			ø	<b>ISO</b>
CAL BLOCK	MEMORY	USB	ZERO	BATT	1 DAY	SOFTWARE	+4 DAYS

Model	Measuring range Echo-Echo	Measuring range Pulse-Echo	Readout	Sensor	Sound velocity	Opt Factory calibrat	
SAUTER	mm	mm	[d] mm		m/sec	KERN	
TN 30-0.01EE	3-30	0,65-600	0,01	5 MHz   Ø 10 mm	1000-9999	961-113	
TN 60-0.01EE	3-60	0,65-600	0,01	5 MHz   Ø 10 mm	1000-9999	961-113	

# **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



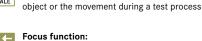
Scan mode: Continuous capture and display of measurements



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:

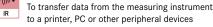
To transfer data from the balance/measuring instrument to a printer, PC or other peripherals



# WLAN data interface:

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

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



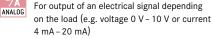


Control outputs (optocoupler, digital I/O): To connect relays, signal lamps, valves, etc.



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:

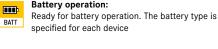
 ${\mathcal C}$ Weighing units can be switched to e.g. non-metric. UNIT Please refer to website for more details



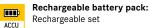
Measuring with tolerance range (limit-setting function):

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

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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

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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



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