

# MATERIAL THICKNESS MEASUREMENT

Industry | Laboratory | Quality Assurance

PROFESSIONAL MEASURING

PROFESSIONAL MEASURING



# 2025

**Jusztírozás CAL**

A pontosság beállítása  
Külső etalon szükségese

**Kalibráló etalon**

A műszer beállításához  
szükséges etalon. Tartozék.

**Peak-Hold funkció**

Csúcsérték gyűjtése  
egy mérési folyamaton belül

**Scan-mód**

Folyamatos mérési eredmény gyűjtése  
és megjelenítése a kijelzőn

**Push és Pull**

A mérőszóval mérhetünk  
húzó valamint tolóerőt

**Hosszúságmérés**

Geometriai adatokat gyűjt a mérendő  
tárgyról illetve elmozdulási hosszúságot  
a mérési folyamat alatt.

**Fókuszálás mód**

Kijelölt méréstartományban növeli  
a mérési pontosságot

**Belső memória**

Belső tárolókapacitás a begyűjtött  
mérési értékek elmentésére

**Adatkimenet RS-232**

Számítógépes illetve nyomtatóhoz  
történi csatlakozáshoz

**Adatkimenet USB**

Csatlakoztatási lehetőség  
Számítógéphez, nyomtatóhoz, vagy  
egyéb külső eszközhöz

**WLAN adatátvitel**

Vezeték nélküli adatátvitel  
számítógépre, nyomtatóra.

**Bluetooth adatátvitel**

Vezeték nélküli adatátvitel  
számítógépre, nyomtatóra.

**Profibus**

Adatok továbbítása pl. mérlegek, mérőcellák, kijelzők és periférius eszközök között nagyobb távolság esetén. Gyors, biztonságos hiba-mentes adatátvitel. Mágneses interferenciára kevésbé érzékeny.

**Profinet**

Hatékony adatsere decentralizált periférius eszközök között. Pl. Mérlegek, erőmérők, mérőműszerek, kijelzők és kontrollerek között. Különösen akkor ajánlott, amikor sok összetevő változik (mért értékek, eszközök, eljárások.). Rövidebb átállási idő, gyorsabb az eszközök integrálása a rendszerbe.

**Adatkimenet Infravörös**

Csatlakoztatási lehetőség  
Számítógéphez, nyomtatóhoz, vagy  
egyéb külső eszközhöz

**Vezérléskimenet**

(optocsatlakozású vagy digitális I/O)  
Jelfogók, relék, szignállámpák, szelepek  
csatlakoztatására

**Analóg adatkimenet**

Analóg adatfeldolgozásra alkalmas külső  
eszköz csatlakoztatási lehetősége

**Statiztika**

Statiztika adatok készítése a mérőszóval  
által nyert mérési eredményekből mint  
átlag, állandó eltérés stb.

**PC szoftver**

Mérési eredmények továbbítására  
mérőszóval a számítógépbe.

**Nyomtató**

A készülékhez a mérési eredmények  
kinyomtatására nyomtató  
csatlakoztatható.

**GLP/ISO protokoll**

Csak Sauter nyomtatóval működik  
Mérési eredmények dátummal,  
pontosságával, sorozatszámával kiegészítése

**Mértékegységek**

Átkapcsolás nem metrikus mértékegységekre  
További információt az interneten találunk

**Mérés tűréshatár használat**

Beállítható alsó és felső tűréshatár pl. válogatás,  
kiadagolás funkcióban

**Zéró**

Kijelző visszaállítása nullára

**Hálózati interfész**

A műszer csatlakozása Ethernet hálózathoz

**KERN kommunikációs protokoll**

Szabványosított adatkimeneti parancs, ami segíti az  
adatok átvitelét más műszerekre, számítógépekre.

**Analógekimenet**

0-10 V vagy 4-20 ma

**Elem üzemmód**

Elem üzemmódra előkészített modell.  
A megfelelő elemtípust az adott készülék  
leírása tartalmazza

**Akkumulátor mód**

akkutöltő készlet

**Hálózati adapter**

230V/50Hz szterderd európai szabványos  
Külön rendelhető GB, AUS, USA csatlakozóis.

**Hálózati kábel**

Európai szabvány dugaljhoz kialakított.  
Külön rendelhető GB, AUS vagy USA  
csatlakozó dugó is.

**Motoros hajtás**

A mechanikus elmozdulást motoros  
hajtás végzi. Léptető-motor.

**Gyors mozgás**

A méréshez szükséges mozgás egy  
karnozdulattal végezhető.

**ISO kalibrálás**

Az ISO kalibrálás átfutási ideje napokban  
megadva.

**Csomagküldő szolgálat**

Megrendelés beérkezése 4 munkanapon  
belül

**Csomagküldő szolgálat** Nagy

terjedelmű megrendelés  
beérkezése 7 munkanapon belül

**Motoros hajtás**

A mechanikus elmozdulást motoros  
hajtás végzi. Fokozatmentes.

**DAKKS kalibrálás**

Német akkreditált laborban végzett kalibrálás.

**Hitelesíthető****IP védettség**

PRECIMER KFT.

[precishop@precimer.hu](mailto:precishop@precimer.hu)
<https://precishop.hu>
<https://facebook.com/precishop>

Méréstechnikai termékek | Mérőműszerek | Idomszerek | Webáruház

Szakület és labor: 1163 Budapest, Cziráki utca 32.

Telefon: +36-1-608-6114, +36-1-273-1006

Nyitvatartás: munkanapokon 8:00 - 16:00

BASIC  
★



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### Reliable material thickness gauge for daily use

#### Features

- External measuring head for difficult-to-access measuring points
- Selectable measuring units: mm, inch
- Auto-Power-Off
- Base plate for adjustment included
- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 8 mm) and ultrasound contact gel
- **1** Delivered in a robust carrying case
- TB 200-0.1US-RED: Can only analyse these materials: cast iron, aluminium, copper, brass, zinc, quartz glass, polyethylene, PVC, grey cast iron, nodular cast iron, steel

#### Technical data

- Measuring precision: 0,5 % of [Max]
- Overall dimensions W×D×H 161×69×32 mm
- Battery operation, batteries standard (4×1.5 V AA)
- Net weight approx. 0,30 kg

#### Accessories

- External measuring head, 5 MHz, ∅ 6 mm, for thin test materials: measuring range (steel) up to approx. 80 mm, SAUTER ATB-US01, **€ 215,-**
- External measuring head, 5 MHz, ∅ 12 mm, for hot test materials: Measuring range (steel) 3-200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 270,-**
- External measuring head, 5 MHz, ∅ 8 mm, SAUTER ATB-US06, **€ 110,-**
- External measuring head, 5 MHz, ∅ 10 mm, SAUTER ATU-US09, **€ 150,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

STANDARD				OPTION	

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works	Option	
						Factory Calibration	Certificate
SAUTER	mm	[d] mm		m/sec	€	KERN	€
TB 200-0.1US	1,5 - 200	0,1	5 MHz   ∅ 8 mm	500 - 9999	405,-	961-113	167,-
TB 200-0.1US-RED	1,5 - 200	0,1	5 MHz   ∅ 8 mm	500 - 9999	345,-	961-113	167,-



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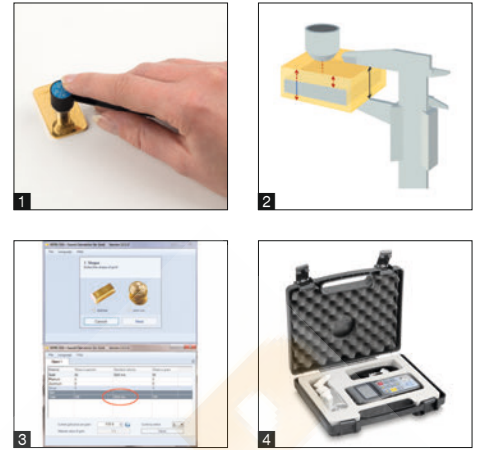
## Compact pocket-sized material thickness gauge

Features	Technical data	Accessories
<ul style="list-style-type: none"> <li>External measuring head for difficult-to-access measuring points</li> <li>Selectable measuring units: mm, inch</li> <li>Data interface RS-232, included</li> <li>AUTO-OFF function to preserve the battery</li> <li>Base plate for adjustment included</li> <li>Scope of delivery: Operating instructions, batteries, external measuring head (∅ 8 mm) and ultrasound contact gel</li> <li><b>1</b> Delivered in a robust carrying case</li> </ul>	<ul style="list-style-type: none"> <li>Measuring precision: 0,5 % of [Max] + 0,1 mm</li> <li>Overall dimensions W×D×H 30×65×120 mm</li> <li>Battery operation, batteries standard (4×1.5 V AAA)</li> <li>Net weight approx. 0,20 kg</li> </ul>	<ul style="list-style-type: none"> <li>Data transfer software, interface cable included, SAUTER ATC-01, <b>€ 100,-</b></li> <li>External measuring head, 5 MHz, ∅ 6 mm, for thin test materials: measuring range (steel) up to approx. 80 mm, SAUTER ATB-US01, <b>€ 215,-</b></li> <li>External measuring head, 5 MHz, ∅ 12 mm, for hot test materials: Measuring range (steel) 3-200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, <b>€ 270,-</b></li> <li>External measuring head, 5 MHz, ∅ 8 mm, SAUTER ATB-US06, <b>€ 110,-</b></li> <li>External measuring head, 5 MHz, ∅ 10 mm, SAUTER ATU-US09, <b>€ 150,-</b></li> <li>External measuring head, 5 MHz, ∅ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, <b>€ 150,-</b></li> <li>Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, <b>€ 35,-</b></li> </ul>

STANDARD	OPTION

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option	
						Factory Calibration	Certificate
SAUTER	mm	[d] mm		m/sec		KERN	€
<b>TD 225-0.1US</b>	1,2 - 225	0,1	5 MHz   ∅ 8 mm	1000 - 9999	<b>485,-</b>	961-113	167,-

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## Ultrasonic measuring instrument for checking the authenticity of gold bars and coins

### Features

- **1** You can use the TN-GOLD to determine whether gold or silver bars and coins are genuine or whether they contain a core of a different material
- The instrument measures the thickness of gold bars and gold coins using ultrasound
- Selectable measuring units: mm, inch
- **2** Process: Ultrasound waves are directed onto the test object using a sensor. The waves penetrate the test object, are then reflected from a surface opposite the object and then picked up again by the sensor. The measurement determined by this process will be compared with the material thickness as measured by a traditional calliper gauge. On the basis of the measurement given, false cores (Figure: grey) for example, those made of tungsten, lead, etc. can be easily identified, as the ultrasound reacts differently, compared with pure gold

- **3** SAUTER SSG software (included) can be used to calculate the sound velocity for various precious metal alloys. This makes it possible to determine whether coins or ingots contain false cores or whether they consist of one and the same material. Compatible with the following operating systems: Windows® 7/8/10
- Known additions in tested gold items – e.g. copper or silver – are compensated by the software
- In addition, the software determines the value of the gold item
- It is a test process which measures right through the whole bar or the whole coin without interference and thereby guarantees the highest level of certainty
- Internal memory for up to 20 files (with up to 100 values per file)
- Base plate for adjustment included
- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 6 mm) and ultrasound contact gel
- **4** Delivered in a robust carrying case

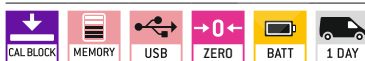
### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 150×74×32 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATU-04, **€ 120,-**
- USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01, **€ 50,-**
- External measuring head, 7 MHz, ∅ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 150,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

#### STANDARD



#### OPTION



Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option	
						Factory Calibration Certificate	€
SAUTER TN GOLD 80	mm 0,75 – 80	[d] mm 0,01	7 MHz   ∅ 6 mm	m/sec 1000 – 9999	<b>770,-</b>	KERN 961-113	€ 167,-



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## Portable measuring device for ultrasonic material thickness testing

Features	Technical data	Accessories
<ul style="list-style-type: none"> <li>External measuring head</li> <li>Data interface USB standard (only for models with readout [d] = 0,01 mm)</li> <li>Scan mode (10 measurements per sec.) or single point measuring mode possible</li> <li>Internal memory for up to 20 files (with up to 100 values per file)</li> <li>Selectable measuring units: mm, inch</li> <li>Scope of delivery: Operating instructions, batteries, device-specific measuring head and ultrasound contact gel</li> <li><b>1</b> Delivered in a robust carrying case</li> </ul>	<ul style="list-style-type: none"> <li>Measuring precision: 0,5 % of [Max] ± 0,04 mm</li> <li>Overall dimensions W×D×H 150×74×32 mm</li> <li>Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery</li> <li>Net weight approx. 0,25 kg</li> </ul>	<ul style="list-style-type: none"> <li>Data transfer software, interface cable included, SAUTER ATU-04, <b>€ 120,-</b></li> <li>External measuring head, 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, <b>€ 235,-</b></li> <li>External measuring head, 7 MHz, ø 6 mm, for thin test materials: Measuring range 0,75-80 mm (steel), SAUTER ATU-US02, <b>€ 150,-</b></li> <li>External measuring head, 5 MHz, ø 10 mm, SAUTER ATU-US09, <b>€ 150,-</b></li> <li>External measuring head, 5 MHz, ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, <b>€ 150,-</b></li> <li>External measuring head, 5 MHz, ø 12 mm, for hot test materials: Measuring range (steel) 3-200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, <b>€ 270,-</b></li> <li>Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, <b>€ 35,-</b></li> </ul>

STANDARD

[d]=0,01 mm

OPTION

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option	
						Factory	Certification
		[d]				KERN	€
	mm	mm		m/sec			
<b>SAUTER</b>	mm	[d]					
<b>TN 80-0.1US</b>	0,75 - 80	0,1	7 MHz   ø 6 mm	1000 - 9999	<b>630,-</b>	961-113	167,-
<b>TN 230-0.1US</b>	1,2 - 230	0,1	5 MHz   ø 10 mm	1000 - 9999	<b>630,-</b>	961-113	167,-
<b>TN 300-0.1US*</b>	3 - 300	0,1	2,5 MHz   ø 14 mm	1000 - 9999	<b>740,-</b>	961-113	167,-
<b>TN 80-0.01US</b>	0,75 - 80	0,01	7 MHz   ø 6 mm	1000 - 9999	<b>700,-</b>	961-113	167,-
<b>TN 230-0.01US</b>	1,2 - 230	0,01	5 MHz   ø 10 mm	1000 - 9999	<b>700,-</b>	961-113	167,-
<b>TN 300-0.01US</b>	3 - 300	0,01	2,5 MHz   ø 14 mm	1000 - 9999	<b>800,-</b>	961-113	167,-

**1** \* KIFUTÓ TERMÉK! A KÉSZLET EREJÉIG RENDELHETŐ! ONLY WHILE STOCKS LAST



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

### Features

- External measuring head
- USB data interface, as 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 (SAUTER ATU-US12, see accessories)
- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 10 mm) and ultrasound contact gel
- Delivered in a robust carrying case

### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 150×74×32 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATU-04, **€ 120,-**
- External measuring head, 5 MHz, ∅ 10 mm, for echo-echo measuring, SAUTER ATU-US12, **€ 345,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

**Note:** All following Pulse-Echo sensors can only be used in Pulse-Echo mode, not in Echo-Echo mode

- External measuring head, 2,5 MHz, ∅ 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3-300 mm (steel), SAUTER ATU-US01, **€ 235,-**
- External measuring head, 7 MHz, ∅ 6 mm, for thin test materials: Measuring range 0,75-80 mm (steel), SAUTER ATU-US02, **€ 150,-**
- External measuring head, 5 MHz, ∅ 10 mm, SAUTER ATU-US09, **€ 150,-**
- External measuring head, 5 MHz, ∅ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 150,-**

STANDARD						OPTION	

Model	Measuring range Echo-Echo	Measuring range Pulse-Echo	Readout [d] mm	Measuring head	Sound velocity m/sec	Price excl. of VAT ex works €	Option	
							Factory	Calibration Certificate
SAUTER	mm	mm					KERN	€
TN 30-0.01EE	3 - 30	0,65 - 600	0,01	5 MHz   ∅ 10 mm	1000 - 9999	<b>980,-</b>	961-113	167,-
TN 60-0.01EE	3 - 60	0,7 - 600	0,01	5 MHz   ∅ 10 mm	1000 - 9999	<b>1340,-</b>	961-113	167,-



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## Premium ultrasonic thickness gauge

Features	Technical data	Accessories
<ul style="list-style-type: none"> <li>External measuring head for difficult-to-access measuring points</li> <li>1 USB data interface, as standard</li> <li>Scan mode (10 measurements per sec.) or single point measuring mode possible</li> <li>Internal memory for up to 20 files (with up to 100 values per file)</li> <li>Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal</li> <li>Selectable measuring units: mm, inch</li> <li>Robust metal housing</li> <li>Base plate for adjustment included</li> <li>Scope of delivery: Operating instructions, batteries, device-specific measuring head and ultrasound contact gel</li> <li>2 Delivered in a robust carrying case</li> </ul>	<ul style="list-style-type: none"> <li>Measuring precision: 0,5 % of [Max] ± 0,04 mm</li> <li>Overall dimensions W×D×H 130×76×32 mm</li> <li>Battery operation, batteries standard (2×1.5 V AA)</li> <li>Net weight approx. 0,50 kg</li> </ul>	<ul style="list-style-type: none"> <li>Software, interface cable included, SAUTER ATU-04TU, € 120,-</li> <li>External measuring head, 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, € 235,-</li> <li>External measuring head, 7 MHz, ø 6 mm, for thin test materials: Measuring range 0,75-80 mm (steel), SAUTER ATU-US02, € 150,-</li> <li>External measuring head, 5 MHz, ø 12 mm, for hot test materials: Measuring range (steel) 3-200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, € 270,-</li> <li>External measuring head, 5 MHz, ø 10 mm, SAUTER ATU-US09, € 150,-</li> <li>External measuring head, 5 MHz, ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, € 150,-</li> <li>Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, € 35,-</li> </ul>

STANDARD	OPTION
CAL BLOCK MEMORY USB TOL ZERO BATT 1 DAY	SOFTWARE +4 DAYS

Model	Measuring range	Readout	Measuring head	Sound velocity	Price excl. of VAT ex works €	Option	
						Factory	Calibration Certificate
SAUTER	mm	[d] mm		m/sec		KERN	€
TU 80-0.01US	0,75 - 80	0,01	7 MHz   ø 6 mm	1000 - 9999	1310,-	961-113	167,-
TU 230-0.01US	1,2 - 230	0,01	5 MHz   ø 10 mm	1000 - 9999	1310,-	961-113	167,-
TU 300-0.01US	3 - 300	0,01	2,5 MHz   ø 14 mm	1000 - 9999	1410,-	961-113	167,-

1 KIFUTÓ SOROZAT! A KÉSZLET EREJÉIG RENDELHETŐ! ONLY WHILE STOCKS LAST



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

### Features

- Dual measuring modes to determine material thickness:
  - Pulse-Echo mode (up to 600 mm)
  - Echo-Echo mode (up to 100 mm) Echo-Echo measurement: Determines the actual material thickness regardless of whether there is a coating on the base metal. In this way, the wall thickness of pipes, for example, can be determined without having to remove the coating. The measurement will be output, 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: TFT colour display (320x240) with adjustable brightness, so that it can be read under the most varied lighting conditions
- Large internal data memory for up to 100 data sets each with 100 individual values
- Energy-saving operation with 2x 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: 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
- Scope of delivery: Operating instructions, batteries, external measuring head (ø 10 mm) and ultrasound contact gel

- 3** Delivered in a robust carrying case
- Interface cable SAUTER FL-A01 (for use of the software) included

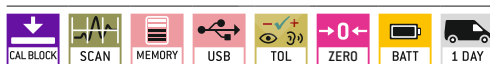
### Technical data

- Measuring precision: 0,4 % of [Max] ± 0,04 mm
- Overall dimensions WxDxH 31x69x130 mm
- Battery operation, batteries standard (2x1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

- External measuring head, 5 MHz, ø 10 mm, for echo-echo measuring, SAUTER ATU-US12, **€ 345,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**
- BalanceConnection software for flexible measured value recording or transmission, compatible with Microsoft® Excel, Access and other applications, scope of delivery: 1 CD, 1 license, KERN SCD-4.0, **€ 210,-**
- Other sensors on request
- Further details and plenty of further accessories see *internet*

#### STANDARD



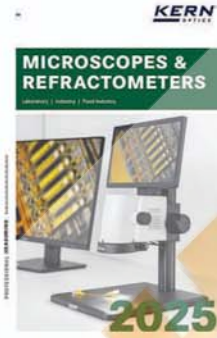
#### OPTION



Model	Measuring range Echo-Echo	Measuring range Pulse-Echo	Readout [d] mm	Sensor	Sound velocity m/sec	Price excl. of VAT ex works €	Option	
							Factory	Calibration Certificate
SAUTER TO 100-0.01EE	3 - 100 mm	0,7 - 600 mm	0,01 mm	5 MHz   ø 10 mm	200 - 19999	<b>1490,-</b>	KERN 961-113	€ 167,-

**KERN:**

Kern & Sohn GmbH. alapítva 1844, Németország. Gyári hitelesítő és kalibráló labor



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