

User's Manual
Thickness Gauge

SaluTron[®] D1



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1 Introduction

The coating thickness gauge belongs today to the basic fittings of quality protection system. As a handy measuring instrument, it has to be many-sided in use and in addition of course robust. It has to measure without destruction of coating and give measure results immediately.

All these qualities are within the multifunctional thickness measure gauge -

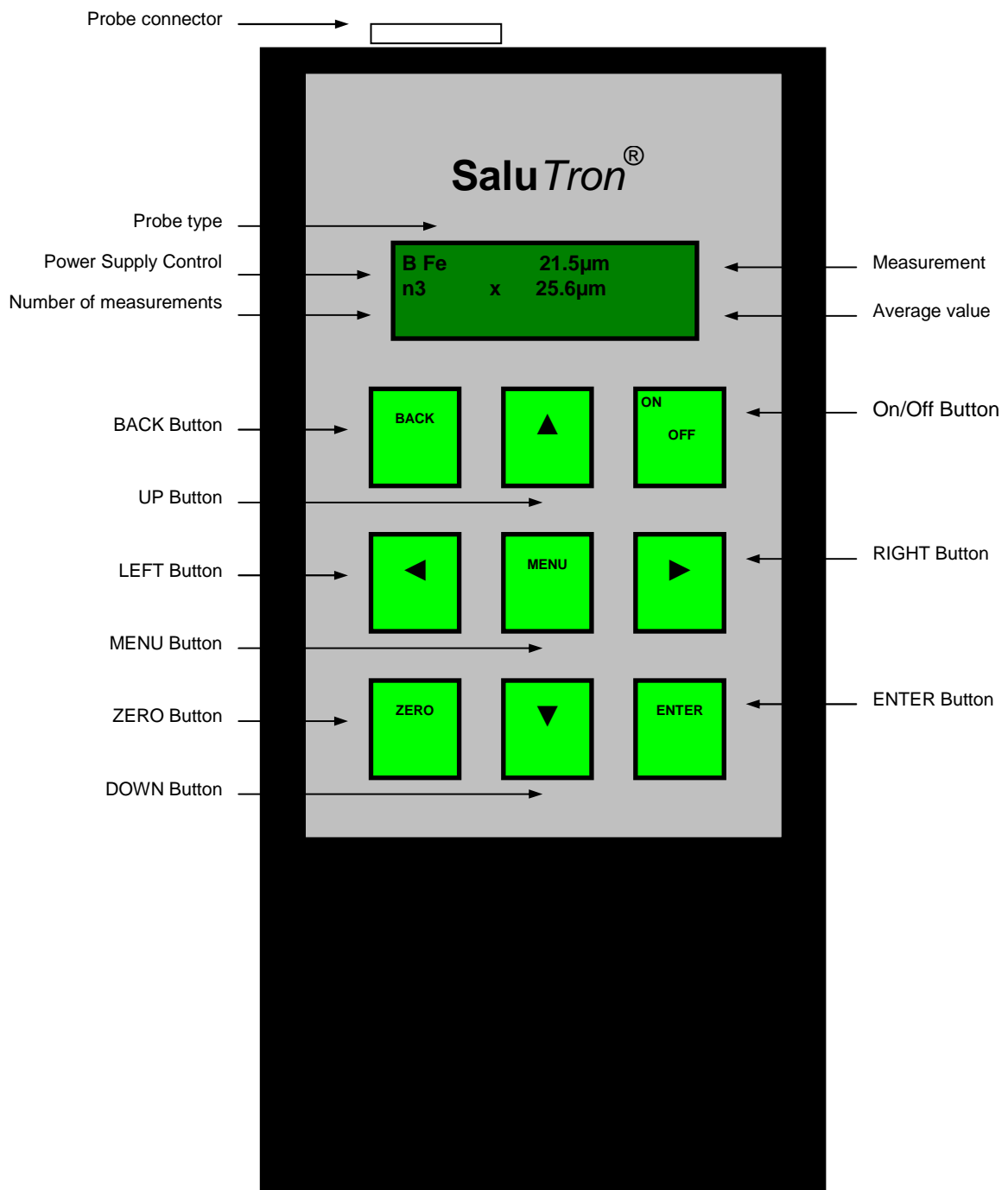
SaluTron[®] D1. If you will make use of all these advantages, we recommend to read this instruction before the first operating of the gauge. In case of trouble don't afraid of contact us. Our specialists will answer all your questions.

2 System description of the gauge

Small, handy, robust and easy to handle - these are attributes of the coating thickness gauge. It is designed as a multifunctional instrument and can be used both on magnetic (Fe) and non-magnetic (NFe) metallic bases.

By using of the Fe-probe, you measure all non-magnetic coatings such as: lacquer, plastic, chrome, copper, zinc, enamel and so on, on steel or iron.

The NFe-probe applies to measure on insulating coatings such as: lacquer, plastic, enamel and so on, on aluminium, copper, brass, that is, on non-magnetic metals (also on some sorts of stainless steel).



3 Maintenance

Accurate measurements can be obtained only by taking correct care of the gauge. Therefore avoid strong shaking, penetration of dust, dirt, chemicals, aggressive substances and water.

Do not expose the gauge to extremes of temperature, for example direct sunlight or strong frost. It could influence measure results. The gauge is water-resistant, what corresponds to IP65 norm. The housing is resistant against most solvents.

The probe should be regularly controlled. Remove dirt, for example rests of the paint, from the measure head. It is advisable to replace batteries, when you don't use the gauge for a long time.

This way you avoid damage owing to low batteries. By disturbances of the gauge or the probe please, don't attempt to repair it by yourself. Our service department will provide expert service quickly and inexpensively.

4 Supply of current

This gauge is powered by two 1.5 Mignon-cells, which is enough for some thousand measurements. The sign **B** appears before the battery power is low. Replace batteries at that time.

Note

Used batteries are special refuse, which should not be disposed together with house refuse but it must be disposed in a special way.

5 Measurement

The gauge is delivered with the probe, carrying case, batteries, zero plates, calibrations' samples and operating instructions ready to take measurements.

Switch on the gauge with the **ON/OFF** button. It appears a designation and the last measured value. By placing the probe on the coat, you can directly start your measurements.

Strong magnetic fields are likely to influence measurements in both the Fe- and nFe-probe. In this case you have to zeroing the gauge. Sometimes the probe must be new calibrated on three samples. Choose the "Calibration" from the menu to adjust the probe.

Avoid measurements on magnets.

The gauge switches automatically off by high electrostatic loading. This protects the electronic parts for damage.

The **SaluTron[®] D1** also switches off automatically after approx. three minutes, if it is not used. The „V“-groove on the head of the probe helps by measuring on rod materials.

The probe is plugged on the upper part of the gauge and fixed tightly. When there is no probe, the display shows an indication “No probe connected” and additionally you hear a “Beep“.

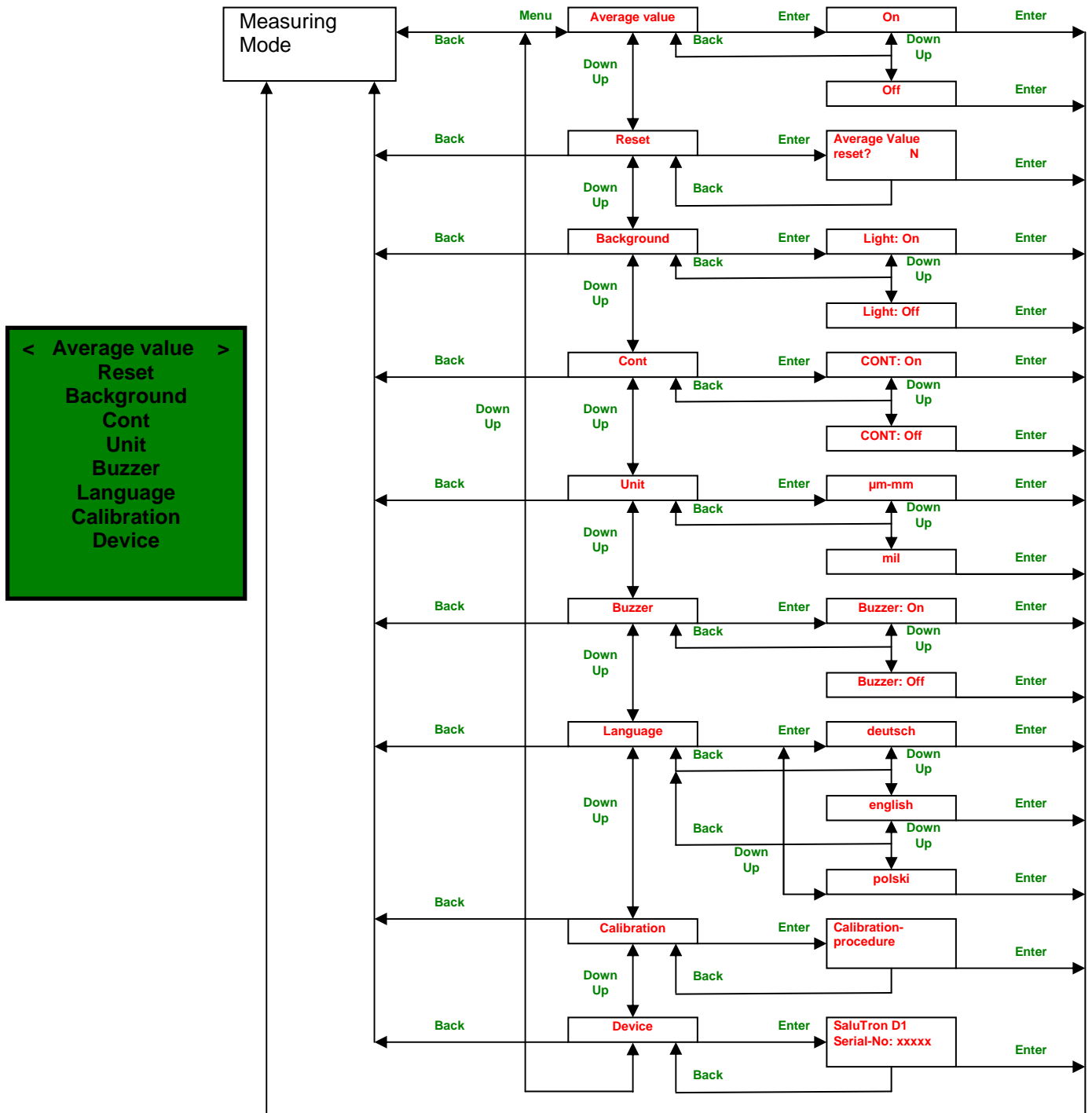
6 Directions to maintenance and handling

Even the basic model of **SaluTron[®] D1** has some particular functions, which are stored in the menu.

With the **MENU-Key** you call the menu, with **DOWN-** or **UP-Key** you move the cursor (signs <>) and choose the particular function and with **ENTER-Key** you call the function.

With **EXIT-Key** you leave the menu and return to measuring mode.

7 Menu structure



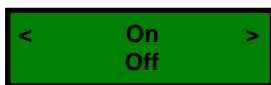
- < Average value >
- Reset
- Background
- Cont
- Unit
- Buzzer
- Language
- Calibration
- Device

8 Average value

The gauge calculates with every measurement (without the storing of single measurement) the average value. If this function is set to “**On**”, this value will be displayed together with the number of measurements in the second line of the display.

By “**Off**” the average will not be displayed. This function is very useful, if the measuring surface has for example a very big roughness.

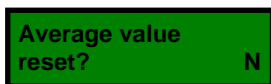
In this case the placing of the probe at the same point of surface doesn't give the same value. It is better to measure for example 5 times and to take as the result the average.



- Average is displayed
- Average is not displayed

9 Reset

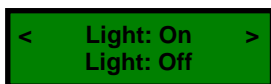
Every time the average value could be reset.



If the average should be reset, change with **DOWN-** or **UP-Key** from “N” (No) to “Y” (Yes) and confirm with **ENTER-Key**. In this case the average will be new calculated with next measurement.

10 Background

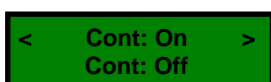
You can turn on or off the background light of the display. This function is very useful by using the gauge in the dark environment.



- Background on
- Background off

11 Cont

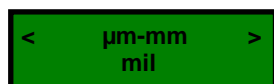
Apart from simply point measurements, you can take continued measurements on planes. In this case there will be four times measured and displayed during a one second.



- Point measurement
- Continued measurement

12 Dimension

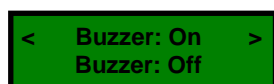
The gauge is available internationally and put into practice. Therefore it is also possible to switch over the unit $\mu\text{m}/\text{mm}$ to the American unit of measure - mils (1 mil = 25.4 μm = 0.0254mm).



- Measure is displayed in μm or mm
- Measure is displayed in mil

13 Buzzer

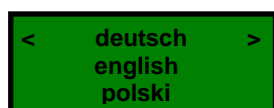
Each pressing of the button may be followed by an acoustic signal. This signal you can switch on or off.



- Key-Beep is active
- Key-Beep is inactive

14 Language

Commands can be displayed in German, English or Polish.



- german is active
- english is active
- polish is active

15 Calibration

- The gauge and the probe are co-ordinated to each other.
- But sometimes there is necessary to compensate the external influences, for example, the geometric of the measured object (pipes), small contact fields, big changing of temperature, external magnetic fields.
- In this case or when you connect a new probe, you have to adjust the gauge new.
- The calibration follows through measuring of four different points from the measuring range.
- The first one called “Zero point” corresponds to thickness equal zero and is not changeable.
- In practice means measuring on the zero plate.
- The other three points correspond to the measuring on three different samples and can be chosen as you like.

- There is only important that they have to follow with the rising values for example 10, 100 and 700 μm . Factory adjustment is about 50, 350, 700 μm .
- It is recommended to always choose the calibration points from wished measuring range.
- For example, if you measure the thickness of the coating between 20 and 200 μm you should calibrate the probe on the samples which are about 20, 100, and 200 μm .

- choose the menu point "Calibration"



- place the probe 4 times on the sample of zero and lift up

Std: 50.0 μm
change - ENTER

- place the probe 4 times on the sample of 50 μm

Std: 350 μm
change - ENTER

- place the probe 4 times on the sample of 350 μm

Std: 700 μm
change - ENTER

- place the probe 4 times on the sample of 700 μm

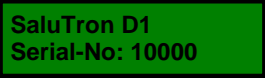
When the display shows a different value from your sample, you have to adjust a value on the display. In this case press the **ENTER-Key**. The cursor is on. Move the cursor to the position you want to correct with **RIGHT-** or **LEFT-Key**.

The correction of the value is to do with **DOWN-** or **UP-Key**. Is the displayed value is correct confirm with **ENTER**. Now, take measurements on the sample.

This procedure is only necessary if you replace your fixed probe to a new one or you are going to measure the objects, where the geometry of surface has influence for the measuring result (for example, very small size, measuring on corners etc). In most cases there is only necessary zeroing of the gauge with **ZERO-Key**.

16 Device

If you call this option, you obtain the exact data about your gauge and a serial number.



SaluTron D1
Serial-No: 10000

17 Zeroing of the gauge

The **SaluTron[®] D1** is a robust and very exact gauge but different conditions, for example variable relations of temperature, exchange of batteries, no using for a long time or various substrates (groundwork) can influence measuring results. In these cases and/or generally from time to time, you have to zero your gauge. You need zero plates from the carrying case or your own sample of zero.

- press **ZERO** in measure mode



Zero:
Put the Probe on

- place the probe on the zero plate and wait until beep



Zero:
Put the Probe off

- lift the probe for minimal 5 cm off the zero plate and wait until beep

The zeroing is completed. The gauge returns to the measuring mode and is ready for measurements.

18 Features

Technical data		
Base material (substrate)	Fe:	iron or steel
	NFe:	non-magnetic metals such as aluminum, zinc, copper, brass, some stainless steel grades
Layers	Fe:	non-magnetic coatings such as lacquer, plastics, chromium, copper, zinc, enamel, etc.
	NFe:	insulating coatings such as lacquer, enamel, plastics, paper, glass, rubber, etc., anodized aluminum
Measuring range	Fe:	0 - 2000 μm (0 - 2 mm) or 0.00 - 80 mil
	NFe:	0 - 800 μm (0 - 0.8 mm) or 0.00 - 32 mil
Measurement display	Fe:	0.0 - 999 μm and from then 1.00 - 2.00 mm or 0.00 - 80 mil
	NFe:	0.0 - 800 μm or 0.0 - 32 mil
Resolution	Fe:	0.1 μm in the range of 0.0 - 99.9 μm 1 μm in the range of 100 - 999 μm 0.01mm in the range of 1.00 - 2.00 mm or 0.01 mil in the range of 0.00 - 9.99 mil 0.1 mil in the range of 10.0 - 80.0 mil
	NFe:	0.1 μm in the range of 0.0 - 99.9 μm 1 μm in the range of 100 - 800 μm or 0.01 mil in the range of 0.00 - 9.99 mil 0.1 mil in the range of 10.0 - 32 mil
Minimum thickness of base material	Fe:	0.20 mm or 8 mil
	NFe:	0.05 mm or 2 mil
Repetitive accuracy		$\pm (1.5 \mu\text{m} + 2\%)$ or $\pm (0.06 \text{ mil} + 2\%)$
Minimum measuring area		10 x 10 mm or 0.4" x 0.4"
Blocks		optional in the range of memory's capacity
Temperature	Storage:	-10°C to 60°C or 14°F to 140°F
	Operating:	- 0°C to 60°C or 32°F to 140°F
Probes		One-Point
Printer		HP-infrared (distance max. 4.5 m, on request) or standard serial printer
Power supply		2 x 1.5 V AA alkaline
Dimensions (l x w x h)		120 x 65 x 22 mm
Weight		150 g (with batteries) or 5.3 oz

Technical changes reserved. All **SaluTron[®]** gauges correspond to national (DIN) and international (ISO, BS, ASTM) norms and possess CE-sign.