User´s Manual

Thickness Gauge

Salu*Tron*® D1

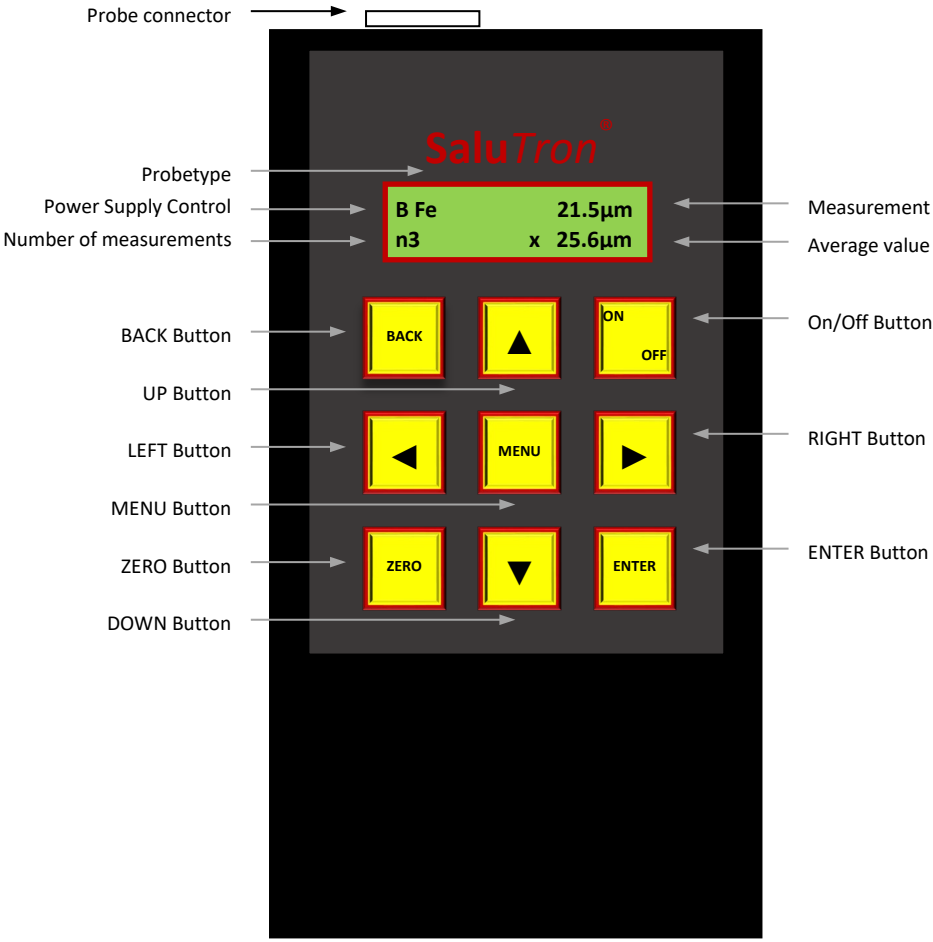
Inhalt

1. Introduction

The **Salu*Tron*®** D1 coating thickness gauge is an essential tool for quality protection systems. It is a multifunctional instrument that is handy, robust, and easy to use. The gauge can measure coatings without destroying them and provide immediate results. This manual provides instructions for using the gauge and troubleshooting any issues that may arise.

2. System Description

The **Salu*Tron*®** D1 coating thickness gauge is designed to be used on both magnetic (Fe) and non-magnetic (NFe) metallic bases. The Fe-probe is used to measure non-magnetic coatings such as lacquer, plastic, chrome, copper, zinc, enamel, etc., on steel or iron. The NFe-probe is used to measure insulating coatings such as lacquer, plastic, enamel, etc., on aluminum, copper, brass, and other non-magnetic metals (including some types of stainless steel).


Probe connector
SaluTron®
Probetype
Power Supply Control
Number of measurements
B Fe 21.5µm
n3 x 25.6µm
Measurement
Average value
BACK Button
UP Button
LEFT Button
MENU Button
ZERO Button
DOWN Button
BACK
ON
OFF
MENU
ZERO
ENTER
On/Off Button
RIGHT Button
ENTER Button

3. Maintenance

To obtain accurate measurements, it is essential to take proper care of the gauge. Avoid exposing the gauge to strong shaking, dust, dirt, chemicals, aggressive substances, and water. Do not expose the gauge to extreme temperatures, such as direct sunlight or strong frost, as it can affect the measurement results. The gauge is water-resistant and resistant to most solvents. Regularly clean the probe and replace the batteries when necessary. Do not attempt to repair the gauge or the probe by yourself.

4. Supply of Current

The **Salu*Tron*®** D1 coating thickness gauge is powered by two 1.5 Mignon-cells, which are enough for several thousand measurements. The gauge displays a "B" sign when the battery power is low, indicating that it is time to replace the batteries.

Used batteries should be disposed of properly.

5. Measurement with the Salu*Tron*® D1

To take measurements with the **Salu*Tron*®** D1 coating thickness gauge, switch on the gauge with the ON/OFF button. The gauge displays a designation and the last measured value. Place the probe on the coating to start taking measurements. Avoid measuring on magnets, as it can affect the measurement results. The gauge switches off automatically after approximately three minutes of inactivity.

Strong magnetic fields are likely to influence measurements in both the Fe and NFe probes. In such cases, you need to zero the gauge.

Sometimes, the probe needs to be calibrated using three samples. Select 'Calibration' from the main menu to adjust the probe.
The gauge automatically switches off due to high electrostatic loading, which protects the electronic components from damage.

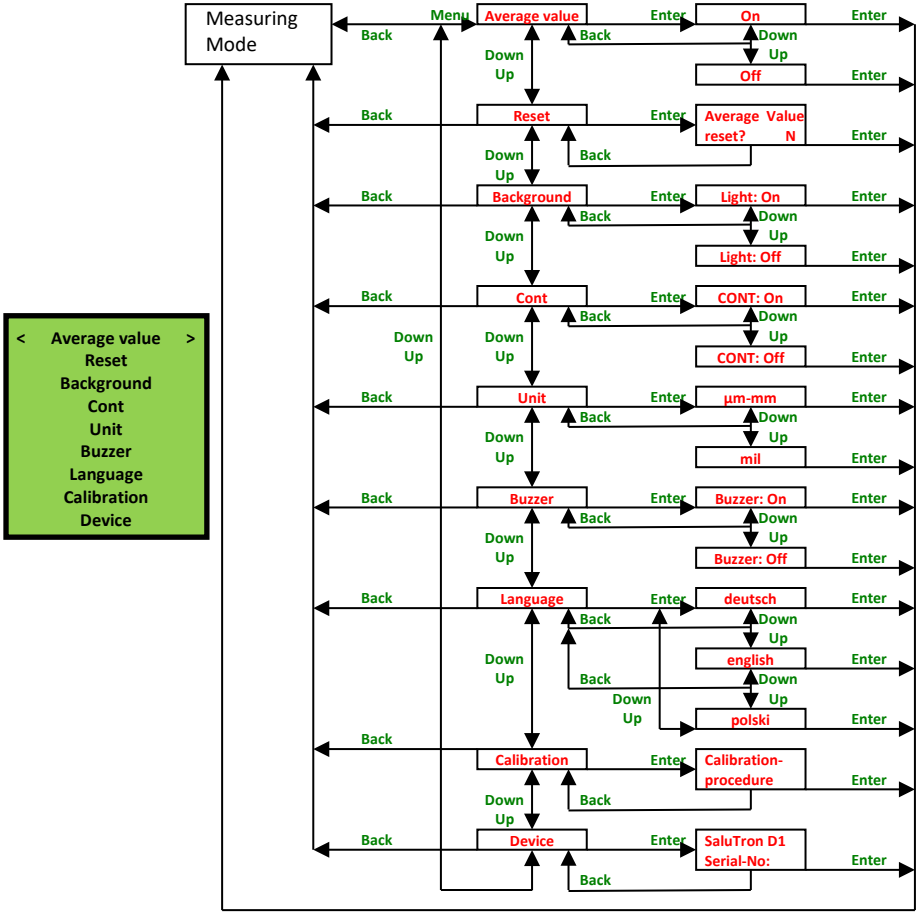
6. Main Menu

The **Salu*Tron*®** D1 coating thickness gauge has a menu with several functions that are useful for taking measurements. To access the menu, press the MENU key. Use the DOWN or UP key to move the cursor and choose the desired function. Press the ENTER key to select the function and the BACK key to return to measuring mode. The functions in the menu are:

- **Average Value:** The gauge calculates the average value of multiple measurements and displays it with the number of measurements. This function is useful when measuring surfaces with significant roughness.
- **Reset:** This function resets the average value.
- **Background:** This function turns on or off the background light of the display.
- **Cont:** This function allows for continuous measurements on planes, with four measurements taken and displayed in one second.
- **Dimension:** This function allows for switching between the unit µm/mm and the American unit of measure - mils.
- **Buzzer:** This function turns on or off the acoustic signal that follows each button press.
- **Language:** This function allows for displaying commands in German, English, or Polish.

- **Calibration:** This function is used to adjust the gauge and the probe to compensate for external influences, such as the geometry of the measured object, small contact fields, big changes in temperature, and external magnetic fields. Calibration involves measuring four different points from the measuring range.
- **Device:** display of the device type and serial number

The structure of **Salu*Tron*®**D1-Menu as below:



7. Calibration steps

The gauge and probe need to be coordinated with each other. However, external factors such as the geometry of the measured object (pipes),

small contact areas, significant temperature changes, and external magnetic fields may require compensation. In such cases, when connecting a new probe or dealing with these influences, the gauge needs to be adjusted accordingly. Calibration is performed by measuring four different points within the measuring range. The first point, known as the "Zero point," corresponds to a thickness of zero and cannot be changed. In practice, this involves measuring on a zero plate or an uncoated basic material. The other three points correspond to measurements on three different samples, which can be chosen freely. The important aspect is that they follow increasing values, such as 10, 100, and 700 µm. The factory adjustment is typically set to 50, 250, and 700 µm. It is recommended to always select calibration points within the desired measuring range. For example, if you are measuring coating thickness between 20 and 200 µm, the probe should be calibrated on samples around 20, 100, and 200 µm.

To calibrate the gauge, follow these steps:

- Select the "Calibration" option from the menu.
- Place the probe on the zero sample four times, then lift it up.
- Place the probe on the 50 µm sample four times.
- Place the probe on the 250 µm sample four times.
- Place the probe on the 700 µm sample four times.

If the display shows a different value than your sample, you need to adjust the value on the display. In such cases, press the ENTER key. The cursor will appear, allowing you to move it to the position you want to correct using the RIGHT or LEFT keys. The correction of the value is done using the DOWN or UP keys. Once the displayed value is correct, confirm it by pressing ENTER. You can now proceed to take measurements on the sample.

This calibration procedure is only necessary when replacing a fixed probe with a new one or when measuring objects where the surface geometry can influence the measurement results (e.g., very small sizes or measuring on corners). In most cases, zeroing the gauge using the ZERO key is sufficient.

7. Zeroing of the Gauge

The **Salu***Tron*® D1 coating thickness gauge may need to be zeroed from time to time due to various conditions that can affect measurement results. To zero the gauge, press the ZERO key in measuring mode, place the probe on the zero plate, and wait for the beep. Lift the probe for at least 5 cm off the zero plate and wait for the beep. The zeroing is complete, and the gauge is ready for measurements.

8. Features

Technical data		
Base material (substrate)	Fe:	iron or steel
	NFe:	non-magnetic metals such as aluminium, 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 aluminium
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		± (1.5 µm + 2%) or ± (0.06 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
Power supply		2 x 1.5 V AA alkaline
Dimensions	**(l x w x h)**	150 x 82 x 33 mm or 5,9" x 3,2" x 1,3"
Weight		150 g (with batteries) or 5.3 oz

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

In the interest of environmental protection, dispose of the device properly. Do not throw it into household waste but take it to a designated collection point for electronic waste or return it to your supplier.

Remove the battery beforehand and dispose of it properly in a designated battery collection container.

Packaging materials are also valuable resources! Therefore, contribute them to the recycling process.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