

User's Manual



Surface Resistance Meter SRM[®]200

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Introduction

The SRM110 is a pocket size, lightweight, auto ranging surface resistance tester. Measured values are displayed on an LCD dot matrix module and can be stored in the internal memory. Each measurement includes the current temperature and relative humidity. Built-in electrodes with conductive rubber make good contact with the object under test. IEC compatible electrodes can be externally connected for tests according to **IEC 61340-4-1**, **IEC 61340-2-3** and **IEC 61340-4-5**. The measuring voltage is auto-ranging from 10V to 100V.

Operating Instructions

■ Operation Description

1. Socket for external probes
2. LCD-Display
3. Range LED's

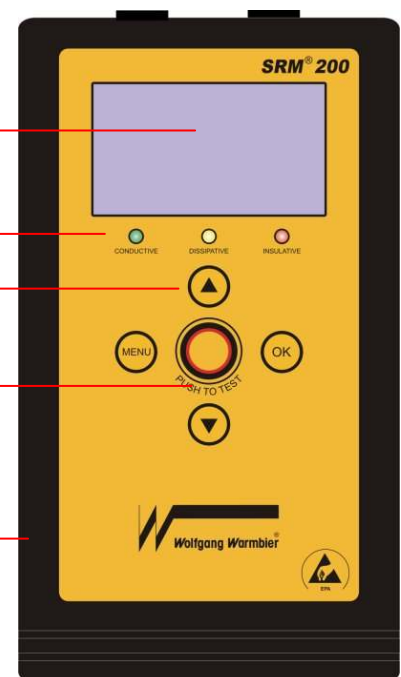
LED	Measuring range	Definition
Green	$< 1 \times 10^3 \Omega - 9 \times 10^4 \Omega$	Electrostatic conductive
Yellow	$1 \times 10^5 \Omega - 9 \times 10^{10} \Omega$	Electrostatic dissipative
Red	$\geq 1 \times 10^{11} \Omega$	Electrostatic insulating

4. Buttons Up / Down / MENU / OK

Button	Function
MENU	- Open menu - Return from sub-menu
OK	- Confirm or change value
▼	- Increase value - Scroll down in menu
▲	- Decrease value - Scroll up in menu

Simultaneously pressing ▲ ▼ turns the instrument off.

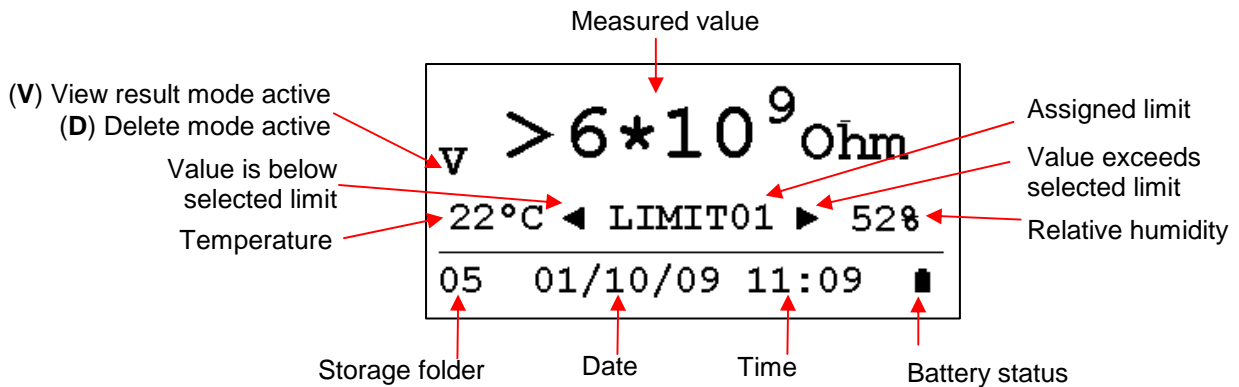
5. "Push to test" button to switch ON and start measurement
6. USB connector for battery charger and PC connection



Menu structure overview

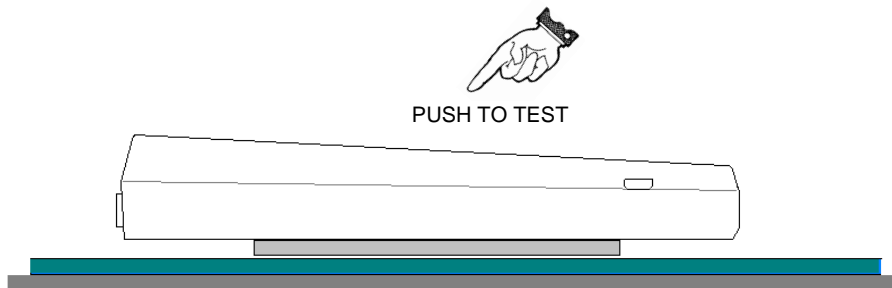
View results	Display measurement results
Delete results	Delete measurement data
Delete all data	Delete all measurement data
Limit	Display or change limit values (max. 19)
Folder name	Display or change folder names (max. 99) <i>Folder names can be entered more convenient by using the PC software</i>
Timeout	Turn-off delay time
Temperature	Change temperature between °C and °F
Date	Adjust date and time
Calibration	Display calibration date and software version
Language	Language selection German / English

LCD display overview



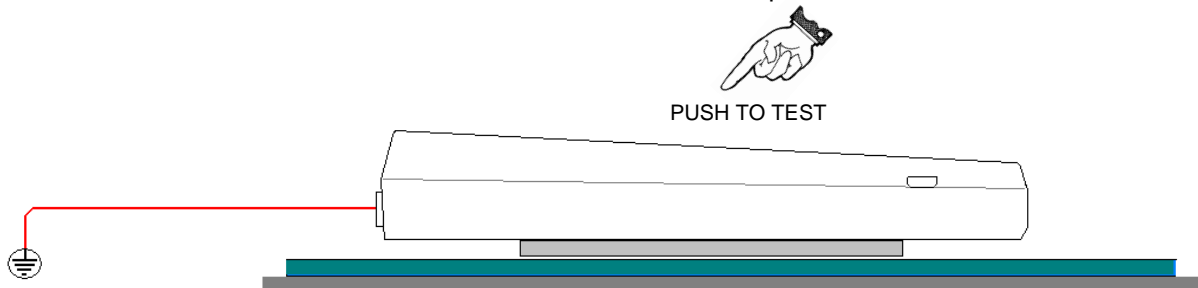
■ Measuring Surface Resistance

- To measure the surface resistance of an object, hold the instrument onto the surface and press the "PUSH TO TEST" button.
- The value is indicated on the display. The coloured LED's additionally indicate the measuring range if no limit is assigned. If the limit is assigned, the limit arrows on the display will indicate the measured value being below or above the limit range.
- $\nabla \blacktriangleleft$ selects the storage folder; **OK** stores the current measurement value to the selected folder.



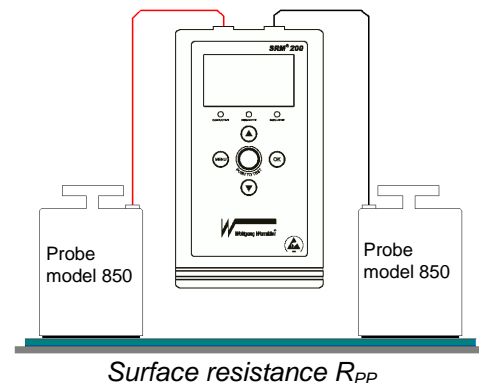
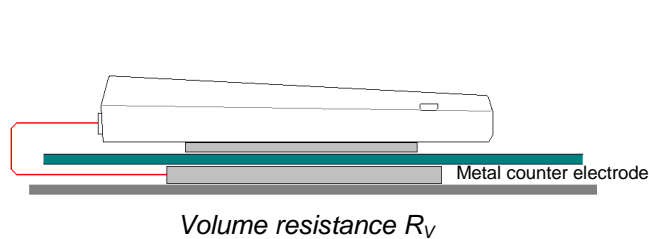
■ Measuring Resistance to Ground

- Plug in the supplied grounding cord at one socket of the instrument. The associated internal electrode will be disconnected.
- Connect the opposite end of the grounding cord to "ground" or a "groundable point".
- Hold the instrument onto the surface like described above and press the button.



Other Measurements

By connecting external electrodes to the instrument's sockets it is possible to measure "point to point resistance", or "volume resistance" for example.



Test values Storage

The included software can be used to transfer and process test values to the computer. The functionality includes:

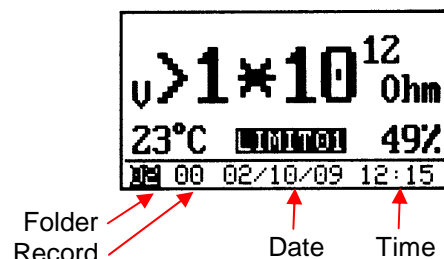
- Measurement data transfer
- Store and export measurement data
- Print measurement report
- Limit value definition
- Labelling of measurement folders
- Adjust Date and time

Functions

The following functions are available. Most of them can be accessed more conveniently by the PC software.

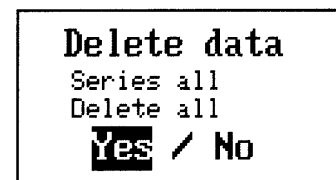
View results

- MENU - press button
- View results - select
- OK - confirm
- ▼▲ - select folder (1-99)
- OK - confirm folder
- ▼▲ - select record (1-99)
- OK - display value



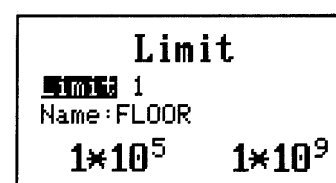
Delete results

- MENU - press button
- Delete results - select
- OK - confirm
- ▼▲ - select folder (1-99)
- OK - confirm folder
- ▼▲ - select record (1-99)
- OK - confirm to delete
- ▼▲ - select yes
- OK - delete value
- MENU - back to menu

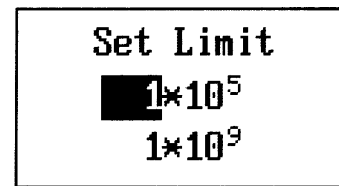


Change Limits

- MENU - press button
- Limit - select limit
 - OK - select limit (1-19)
- ▼ - down to name
 - OK - enter name for limit



- ▼ - down to values
- OK - change values
 - ▼▲ - increase/decrease
 - OK - next value
- MENU - back to limit
- MENU - back to menu



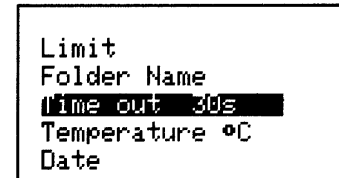
Folder names

- MENU - press button
- Folder Name - select
- ▼▲ - select folder to change
- OK - enter text
 - ▼▲ - select character
 - OK - insert character
- MENU - back to folder names
- MENU - back to menu



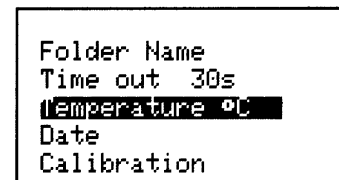
Timeout

- MENU - press button
- Timeout - select timeout
 - OK - change value
- MENU - back to menu



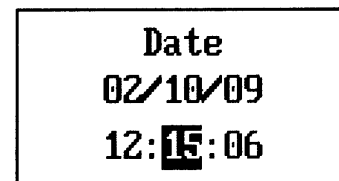
Temperature

- MENU - press button
- Temperature - select temperature
- OK - change between °C or F
- MENU Z- back to menu



Date

- MENU - press button
- Date - select date
- OK - change date
 - ▼▲ - increase/decrease value
 - OK - accept value
- MENU - back to menu



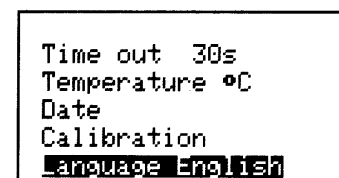
Calibration

- Calibration date and software version display
- MENU - press button
- Calibration - select calibration
- OK - display
- MENU - back to menu



Language

- MENU - press button
- Language - select language
- OK - change language
- MENU Z- back to menu



Additional user instructions for the Software are available on the CD-ROM.

Packing List

The SRM200 includes:

1. Surface Resistance Meter SRM®200
2. Carrying bag
3. Battery charger
4. USB data cable
5. Software on CD-ROM
6. Grounding cord
7. User's manual (German / English)
8. Calibration certificate

Warranty

The warranty does not include the rechargeable battery, battery damage due to drainage, and mechanical damage of the instrument.

The warranty is void if the unit is opened.

Notice

This instrument is **not** approved for measurements in explosion hazard areas!

High electrostatic charges or measuring insulating highly charged materials might damage the instrument!

Using the instrument in power plants is **not** permitted.



Maintenance

Battery condition is permanently monitored in the LCD display.

Connect the instrument to a computer or use the power supply to charge the battery in time.

The unit won't switch on if the battery is damaged. Unscrew the battery lid at the backside of the unit to replace the battery. Replace only a rechargeable battery of the **same type** and take care of the polarity.

Calibration

The recommended calibration interval is 2 years.

Problem Solving

Problem	Cause	Remedy
No Operation	Battery discharged	Connect power supply to charge the battery
No operation even after charging	Battery defect	Replace battery
No operation after battery replacement, red LED inside the battery case lit	Wrong polarity	Insert battery in correct polarity
Conductive rubber defect	Wear	Replace contact rubber

Repair

Repairs shall be carried out by qualified personnel only.

In case you send the instrument for repair, please pack it safely and state clearly the problem

Waste Disposal

Follow the local environmental rules when disposing of the equipment.

Technical Data

Power supply:	Rechargeable Lithium Battery 3,6V 900mAh R6 (AA)
	Charged via external power supply or USB interface
Operating conditions:	-5 ... +40°C, up to 75% rel. humidity, non condensing
Storing conditions:	-10 ... +50°C, up to 85% rel. humidity, non condensing
Connectors:	2 banana sockets - short version (15mm)
Resistance measuring range:	$1 \times 10^3 - 1 \times 10^{12} \Omega$
Temperature measuring range:	0 - 50 °C +/- 1°C
Humidity measuring range:	10 - 90% r.F. +/- 5%
Memory:	9801 measuring values
Test voltage:	10V / 100V (automatic)
Dimensions:	145 x 80 x 35mm (L x B x H)
PC interface:	USB 2.0
Case:	ABS
Weight:	290 g
	Complies with CE

Measuring range	Display range	Resolution	Accuracy	Test Voltage
$10^3 \Omega$	$1 \times 10^3 - 9 \times 10^3$	1 k Ω	10% reading	10V
$10^4 \Omega$	$1 \times 10^4 - 9 \times 10^4$	10 k Ω	10% reading	10V
$10^5 \Omega$	$1 \times 10^5 - 9 \times 10^5$	100 k Ω	10% reading	10V
$10^6 \Omega$	$1 \times 10^6 - 9 \times 10^6$	1 M Ω	10% reading	100V
$10^7 \Omega$	$1 \times 10^7 - 9 \times 10^7$	10 M Ω	10% reading	100V
$10^8 \Omega$	$1 \times 10^8 - 9 \times 10^8$	100 M Ω	10% reading	100V
$10^9 \Omega$	$1 \times 10^9 - 9 \times 10^9$	1 G Ω	10% reading	100V
$10^{10} \Omega$	$1 \times 10^{10} - 9 \times 10^{10}$	10 G Ω	25% reading	100V
$10^{11} \Omega$	$1 \times 10^{11} - 9 \times 10^{11}$	100 G Ω	25% reading	100V
$10^{12} \Omega$	1×10^{12}	1 T Ω	25% reading	100V

Spare Parts

Part number	Description
7100.SRM200.CR	Conductive rubber (Set of 2 pieces)
7100.SRM200.BAT	Lithium rechargeable battery
7100.SRM200.NT	Power supply