



65 7111	Electronic Digital Surface Roughness Measuring Device Operation manual	
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Charge battery

Connect the charge cable to the roughness measuring device. Insert the plug in the respective socket (7) of the roughness measuring device. The charger then has to be connected with the mains or a computer. Charging duration is about 3 hours. Measurements can still be carried out during the charging procedure.

Device care

- Protect the device against impacts and vibrations, excessive dust, moisture, oil stains and strong magnetic fields, etc.
- If you are not using the device, please switch it off in good time in order to keep the energy consumption as low as possible and charge within due time to avoid damage.
- The sensor / measuring head is the precision unit of the testing device and should be treated with special caution. After each test, cover the measuring head carefully with the protected area in order to avoid undesired affects.
- The enclosed standard plate for calibration should be carefully protected in order to avoid scratches that may influence the measuring accuracy.
- In event of malfunctions, the user should under no circumstances open the device to attempt to make repairs on it. Send the device back to the manufacturer along with the guarantee card and the relevant probe as well as a description so that it can be checked and repaired. To do so, please maintain contact with our customer representatives or the sales department of our company.

Troubleshooting:

Error	Possible cause	Troubleshooting
No display	Battery is flat	Charge the battery
Battery symbol appears in the display	Battery is flat	Charge the battery



Please note:

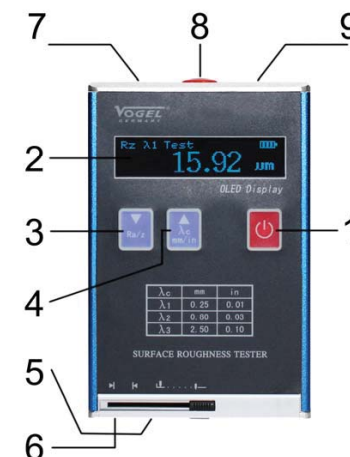
In order to exclude incorrect measurements, please perform the basic setting carefully. Clean the measuring instrument on a regular basis using a cotton cloth, do not use benzine or solvent. Keep the measuring instrument dry as humidity may cause damage to it.

Electric etching or engraving may destroy the electronics, this shall void the guarantee!

Remove the battery if the device is not used for longer periods. Do not discard of used batteries in domestic waste! Dispose of used batteries at designated collecting points or as special refuse.

Controls:

1. On / Off switch
2. LC Display
3. Function key (Ra/z)
4. Function key (mm/inch)
5. Protective cover
6. Measuring head
7. Battery charging socket
8. Start key
9. Reset key




Specification:


- Measuring parameter (µm):
- Testing length (mm):
- Sample length (mm):
- Assessment length (mm):
- Measuring range (µm):
- Display error:
- Display deviation:
- Radius of the probe tip and sensor angle:
- Measuring force of the probe tips:
- Velocity of the measuring force:
- Pressure of the sensor head:
- Battery:
- Dimension:
- Weight:
- Operating temperature:
- Humidity:

Ra, Rz, Rq, Rt
6
0.25 / 0.80 / 2.50
1.25 / 4.0
Ra: 0.05 ~ 10.0
Rz: 0.1 ~ 50
± 15%
<12 %
10 µm ± 1 µm
Angle: 90 +5° / -10°
≤ 0.016N
≤ 800 N/m
≤ 0.5 N
3.7 V, Lithium battery
106mm x 70mm x 24mm
200g
-20°C ~ 40°C
<90% RH

Scope of delivery:

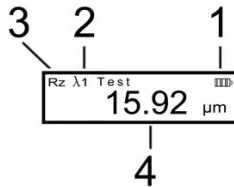
- Measuring device
- USB charge cable
- Connector
- Calibration plate (roughness standard)
- Operating instructions
- Plastic carrying case

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LC Display:

1. Battery charge status
2. Measuring parameter (Ra, Rz)
3. Measuring path ($\lambda 1, \lambda 2, \lambda 3$)
4. Measuring value display



Measuring principle

As the probe tip, which is guided by a measuring head, carries out a uniform, linear motion along the surface to be tested, a contact pin moves up and down vertically to the workpiece. These motions are converted into electric signals which are amplified, filtered and converted into digital signals by A/D. The signals are then calculated into Ra and Rz values by the DSP processor so that they can be shown on the display.

Switching on and off

Press key (1) ON/ OFF. The device is ready for use within one second and switches to measuring mode after the acoustic signal. The values of the measurement previously carried out before switching off are shown.

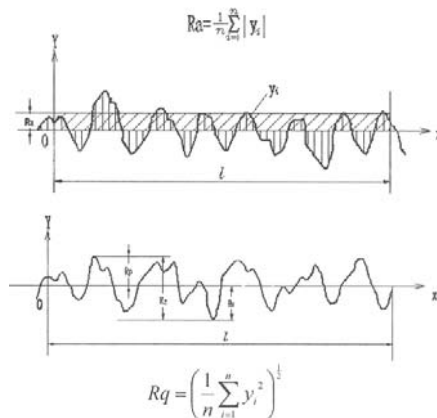
Pressing key (1) ON/ OFF a second time switches the device off. If not used, the device switches off automatically after 5 minutes.

Setting the parameters

You can set the following parameters:

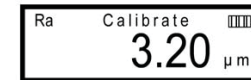
1. Selection of the measuring unit Ra or Rz to be displayed
2. Selection of the measuring length (0.25 mm; 0.80 mm; 2.50 mm)

After switching on the device, press key (3) to select between Ra and Rz. Pressing key (4) sets the limit wavelength $\lambda 1, \lambda 2, \lambda 3$. There is a table on the rear side of the device that can be used to view the limit wavelength assignment.

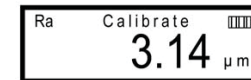


Calibration

Before use, a calibration should be carried out on a vibration-free base in the following way using the supplied roughness standard. When switching on, keep the START key (8) pressed. As the key is released, the device switches to calibration mode (see Fig.).



Keep key (3) and key (4) pressed until the value shown corresponds with the value of the roughness standard. (e.g. 3.14 as shown in the picture.)



Place the device on the waved line area. The measuring head aligns perpendicular to the line. Press the START key (8) in order to start the calibration mode. Repeating the calibration several times can considerably improve the measuring accuracy of the device.

After each measurement, the newly determined value of the roughness standard is stored and replaces the previous one. After switching off and back on, the devices continues to work normally.

If the user has several roughness standards, a matching roughness standard can be selected in order to calibrate the device in the measuring range as a cross-check for normal use. In this manner, the measuring accuracy of the test device can be considerably improved.

Executing the measurement

After setting the measuring unit (Ra or Rz) and the limit wavelength, measurement can be begun.

Press the slider of the protected area to the right as far as it will go so that the measuring area at the lower side is opened completely. Place the measuring device accurately above the measuring point with the markings ► | ◀ and press the red START key (8) on the top in order to start the measurement. The display now indicates "Waiting". During this period, do not touch the START key under any circumstances, in order not to distort the measurement.

After "Waiting" is ended with two acoustic signals, the measurement is finished and the display indicates the measuring value.



Please note:

Make sure that the measuring device is positioned stably on the surface during the measurement to allow the sensor to read-off the surface. New measurements cannot be carried until the sensor has returned to the starting position. After successful measurement the measuring result is shown on the display.