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# iSurfa-520
# Surface Roughness Tester

**Video**

## Contact us

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## Product Advantages And Applications

iSurfa-520 Surface Roughness Tester is a handheld instrument suitable for production site environments and mobile measurement needs. It can measure the surface roughness of various machined parts, calculate corresponding parameters according to selected measurement conditions, and display all measurement parameters and contour graphics on the display screen. The instrument is easy to operate, comprehensive in function, fast in measurement, stable in precision and easy to carry. It can measure the main parameters of the latest international standards, fully and strictly implement international standards, and its measurement parameters comply with the national standard GB/T 3505, and are also compatible with the standards of the United States, Germany, Japan, Britain and other countries, suitable for workshop verification stations, laboratories, measurement rooms and other environments.

## Product Advantages

It adopts a composite structure of main display unit, drive unit and sensor, integrates mechanical and electrical systems, and is controlled by a DSP chip, featuring fast data processing and low power consumption.

● It can measure 14 parameters, is compatible with multiple international standards such as ISO and DIN, and has a large measurement range of 160μm, meeting diverse requirements.

● 480*320 TFT color display screen, no viewing angle limitation, intuitive display of parameters and contour graphics;

● Built-in 6000mAh lithium battery, with a battery life of over 20 hours, equipped with an electricity indicator, and supports continuous charging at any time.

● It can store 100 sets of original data and waveforms. It supports connection to a computer and a printer, and the operation is very convenient.

● Ergonomic design, sturdy and portable, with automatic power-saving functions, etc., and high reliability.

● It has the functions of automatic power-saving and automatic shutdown for energy conservation. The circuit and software design can prevent the motor from getting stuck, and it has strong reliability.

● Support for multiple languages including Chinese,English,-French,German,Italian,etc.,for users in different regions.

● Multiple specialized sensors and measurement brackets are available, enabling the solution to meet the requirements for measuring surfaces of complex shapes.

## Product Applications

● Suitable for use in production sites and mobile measurements, capable of measuring the surface roughness of various mechanical processing parts;

● Compatible with multiple national standards, it can meet the testing requirements in scenarios such as workshop verification stations, laboratories, and measurement rooms.

● Equipped with a variety of optional sensors, it can measure special surfaces such as curved surfaces, small holes, and deep grooves.

● It can be connected to a computer and a printer, facilitating the upload of data, analysis, and the printing of measurement results.

● It can store 100 sets of data and waveforms, with a real-time clock, making it convenient for data recording and management.

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## Product Structure



**1.Display screen**　　**2.Switch button**　　　**3.Save button**　　　**4.Confirm button**
**5.Start measuring button**　　　　**6.Return key**
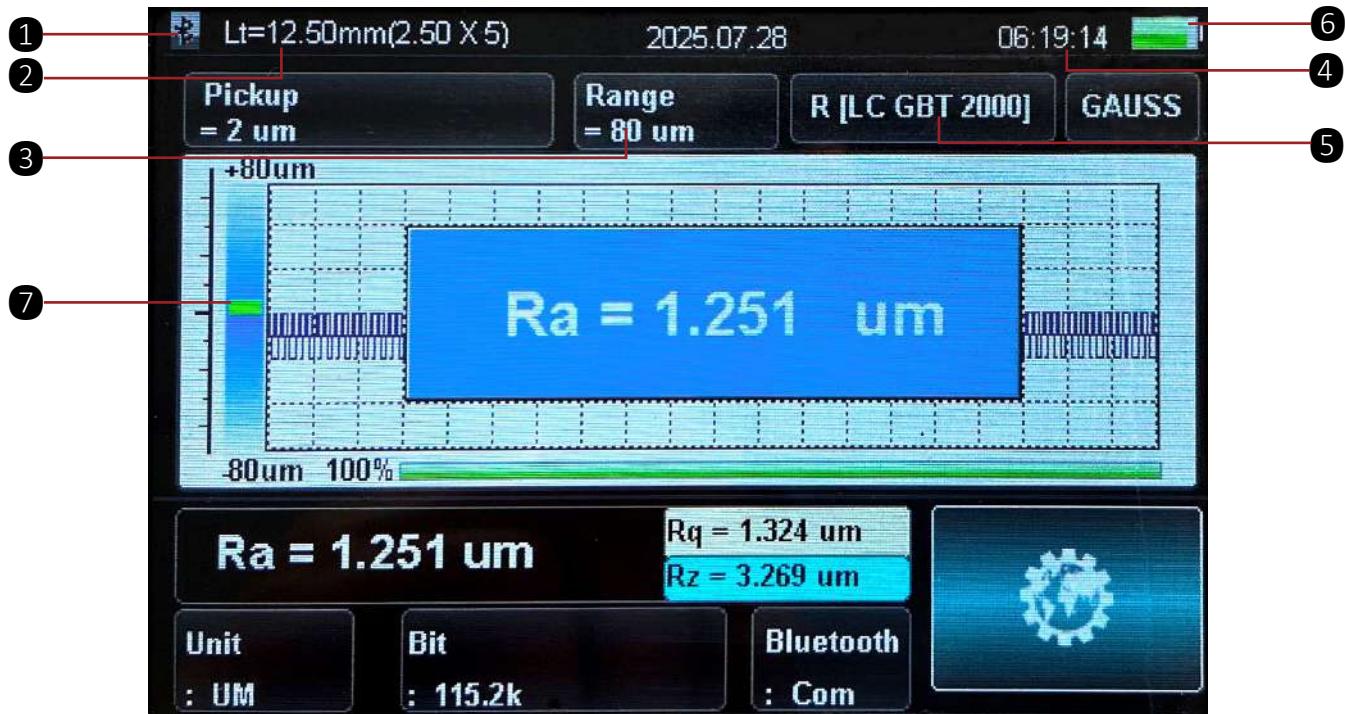
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# Display Interface



**1.Bluetooth logo**　　**2.Sampling length**　　**3.Range**　　　　**4.Time**
**5.Criterion**　　　　**6.Battery power**　　　　　　**7.Pointer position**

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## Display Interface



| Lt=12.50mm(2.50 X 5) | 2025.07.28 | 06:19:14 |

Pickup = 2 um    Range = 80 um    R [LC GBT 2000]    GAUSS

+80um

Ra = 1.251   um

-80um   100%

Ra = 1.251 um    Rq = 1.324 um    Rz = 3.269 um

Unit : UM    Bit : 115.2k    Bluetooth : Com
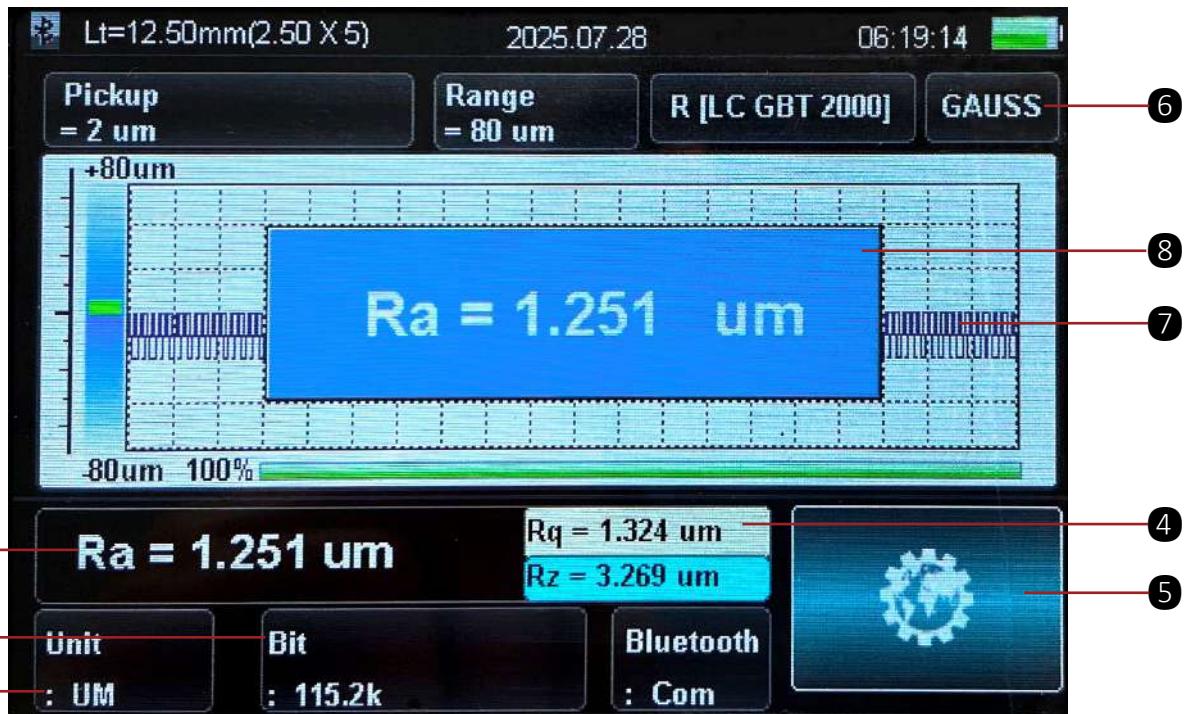
**1.Main parameter display area   2.Parameter unit information      3.Baud rate
4.Auxiliary Parameter Display Area    5.Menu button      6.Filtering method
7.Waveform display area           8.Measurement results show area**

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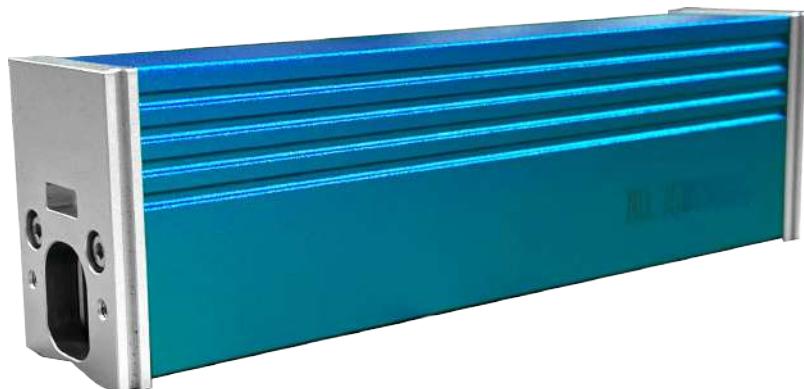
●Obvious identification: Red dots are marked on the sides of each interface, facilitating users to connect the extension cables correctly.

●The right size, convenient for users to hold and use;

●The outer layer is wrapped with soft rubber to prevent the instrument from being damaged by bumps.

●There is a main switch to prevent users from accidentally turning on the instrument.
USB-C universal charging port

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## Calibration Function



The calibration process of the iSurfa-520 surface roughness tester is simple and convenient.
Calibration steps:
Set the calibration value by pressing the "+" or "-" keys according to the standard sample values.
After setting the calibration value, press the "STAR" or "START" button to conduct a complete measurement.
After the measurement is completed, press the "SAVE" button to store the calibration parameters in the instrument.
Finally, press the "ESC" key to exit.

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●Main Disp:Display main parameters

●Vice Disp1:Auxiliary display parameters

●Vice Disp2:Auxiliary display parameters

●BT mode:The working modes of the Bluetooth module are two types: printing mode and data transmission mode.

●BT power:The options for turning on and off the Bluetooth module

Baud bps:The default value is 115.2K.



**Mainly displays the optional parameters**

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The iSurfa-520 surface roughness tester has rich parameter settings.
- Cutoff can be selected as 0.25mm, 0.80mm or 2.50mm.
- N*Cutoff can be selected between 1 and 5.
- The Range is wide, with 4 options: ±20μm, ±40μm, ±80μm and ±160μm.
- Unit can be selected as Inch or mm.

There are various filtering methods, including RC, PC - RC,Gauss and D-P.

# Data Storage And Printing



The data storage and printing processes of the iSurfa - 520 Surface Roughness Tester are convenient. It can store 100 pieces of data. Users can select the required measurement data for viewing and printing.

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# Stylus



| Measurement principle | Linear Variable Differential Transformer |
|---|---|
| Stylus | Natural diamond,60°cone angle, 2µm tip radius |
| Force measurement | <4mN |
| Guide head | Cemented carbide, with a radius of 40mm in the sliding direction |
| Sliding speed | Lr=0.25,  Vt=0.135mm/s |
| | Lr=0.8,   Vt=0.5mm/s |
| | Lr=2.5,   Vt=1mm/s |
| | Return,    Vt=1mm/s |

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## Technical Parameters

| | | |
|---|---|---|
| **Measurement Range** | | The Z axis (Vertical):±160µm;<br>The X axis (Horizontal):17.5mm |
| **Resolution ratio**<br>**The Z axis (vertical)** | | 0.01µm/±20µm |
| | | 0.02µm/±40µm |
| | | 0.04µm/±80µm |
| **Measurement item** | **Parameter** | Ra,RzRq,Rt,Rc,Rp,Rv,R3z,R3y,Rz(JIS),Ry,Rs,Rsk,Rku,<br>Rmax,Rsm,Rmr,RPc,Rk,Rpk,RvkMr1,Mr2 |
| | **Standard** | ISO4287,ANSI B46.1,DIN4768,JISB601 |
| | **Graphic** | Primary profile, Roughness profile, load curves |
| **Filter** | | RC,PC-RC,Gauss,D-P |
| **The sampling length(lr)** | | 0.25,0.8,2.5mm |
| **Assessment length(ln)** | | Ln= lr×n   n=1~5 |
| **Sensor** | **Principle** | The displacement differential inductance |
| | **Stylus** | Natural Diamond, 60B cone angle, 2µm tip radius |
| | **dynamometry** | <4mN |
| | **Skid** | Ruby,Longitudinal radius 40mm |
| | **Taxiing speed** | lr=0.25,  Vt=0.135mm/s |
| | | lr=0.8,   Vt=0. 5mm/s |
| | | lr=2.5,   Vt=1mm/s |
| | | Back,    Vt=1mm/s |
| **Accuracy** | | 0.001um |
| **Indication error** | | No more than 10% |
| **Indication variability** | | No more than 6% |
| **Power supply** | | 6000mAh Lithium ion battery,Charger :DC5V |
| **Size( L*W*H)** | **Display Unit** | 161*80*40mm |
| | **Drive Unit** | 22*26*114mm |
| **Weight** | | About 320g |
| **Working Environment** | | Temperature:-20℃~40℃        Humidity:<90%RH |
| **Store and Transportation** | | Temperature:-40℃~60℃        Humidity:<90%RH |

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| Name | Qty | Remark |
|------|-----|--------|
| **Main Unit** | 1pc | |
| **Sensor** | 1pc | |
| **Calibration block** | 1pc | |
| **Block bracket** | 1pc | |
| **Extension cable** | 1pc | |
| **Screwdriver** | 1pc | |
| **Charger** | 1pc | |
| **USB charging cable** | 1pc | |
| **Operating manual** | 1pc | |
| **Qualified Certificate** | 1pc | |
| **Warranty Card** | 1pc | |
| **Instrument case** | 1pc | |

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## Recommended Table of Sampling Lengths

| Ra(μm) | Rz(μm) | Sampling Length |
|--------|--------|-----------------|
| >5~10 | >20~40 | λc(mm) |
| >2.5~5 | >10~20 | 2.5 |
| >1.25~2.5 | >6.3~10 | |
| >0.63~1.25 | >3.2~6.3 | 0.8 |
| >0.32~0.63 | >1.6~3.2 | |
| >0.25~0.32 | >1.25~1.6 | |
| >0.20~0.25 | >1.0~1.25 | 0.25 |
| >0.16~0.20 | >0.8~1.0 | |
| >0.125~0.16 | >0.63~0.8 | |
| >0.1~0.125 | >0.5~0.63 | |
| >0.08~0.1 | >0.4~0.5 | |
| >0.063~0.08 | >0.32~0.4 | |
| >0.05~0.063 | >0.25~0.32 | |
| >0.04~0.05 | >0.2~0.25 | |
| >0.032~0.04 | >0.16~0.2 | |
| >0.025~0.032 | >0.125~0.16 | |
| >0.02~0.025 | >0.1~0.125 | |