Mikrosize®

iSurfa-310

Roughness Waviness Tester

Contact us

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Features and Applications

Product Applications

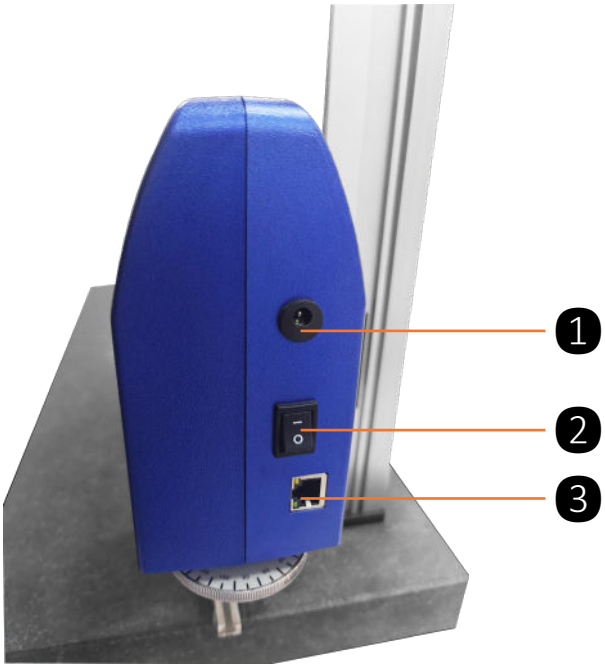
- Precision Machining: Used to detect the surface roughness and waviness of machined parts, ensuring product quality meets high-precision requirements.
- Wafer Surface Inspection: In the semiconductor manufacturing process, measures the roughness and waviness of wafer surfaces to ensure chip quality and production efficiency

Product Features

- High-precision large-stroke guide rail with a length of up to 50mm.
- Sensor measurement range: ±100μm.
- Pad serves as the operating device, portable and ergonomic for operation.
- Wireless WiFi communication enables remote operation and convenient usage.
- Ethernet cable connection for communication, with automatic switching capability with WiFi, facilitating faster data transmission in workshops where wireless devices are inconvenient to use.
- Comprehensive parameters, including 5 measurement types and multiple national standards.
  Stylus can be directly replaced, with convenient replacement operation, enabling measurements in different scenarios.
- Sensor can be freely switched between vertical and coaxial positions relative to the guide rail, allowing depth groove measurement from the side without being restricted by the depth of the stylus and groove.
- Supports switching between metric and imperial units on the operating interface and result parameters.
- Supports switching between Chinese and English interfaces.
- Convenient data storage, allowing direct change of storage path to a USB flash drive or SD card inserted into the Pad. CSV data format facilitates easier data use with no upper limit on data storage.
- Includes multiple filtering methods and analysis algorithms that can be freely combined to meet requirements.
- Supports automatic multiple calibrations of standard blocks, significantly reducing calibration errors.

Instrument Appearance

1. Stylus **2. Inductive Sensor** **3. Sensor Position Adjustment Handwheel**
4. Precision Guideway **5. Sensor Interface** **6. Guideway Position Display Window**
7. Status Indicator Light **8. Leveling Adjustment Disk**



1.Charging Interface
2.Power On/Off Button
3.Network Communication Cable Interface

Product Details

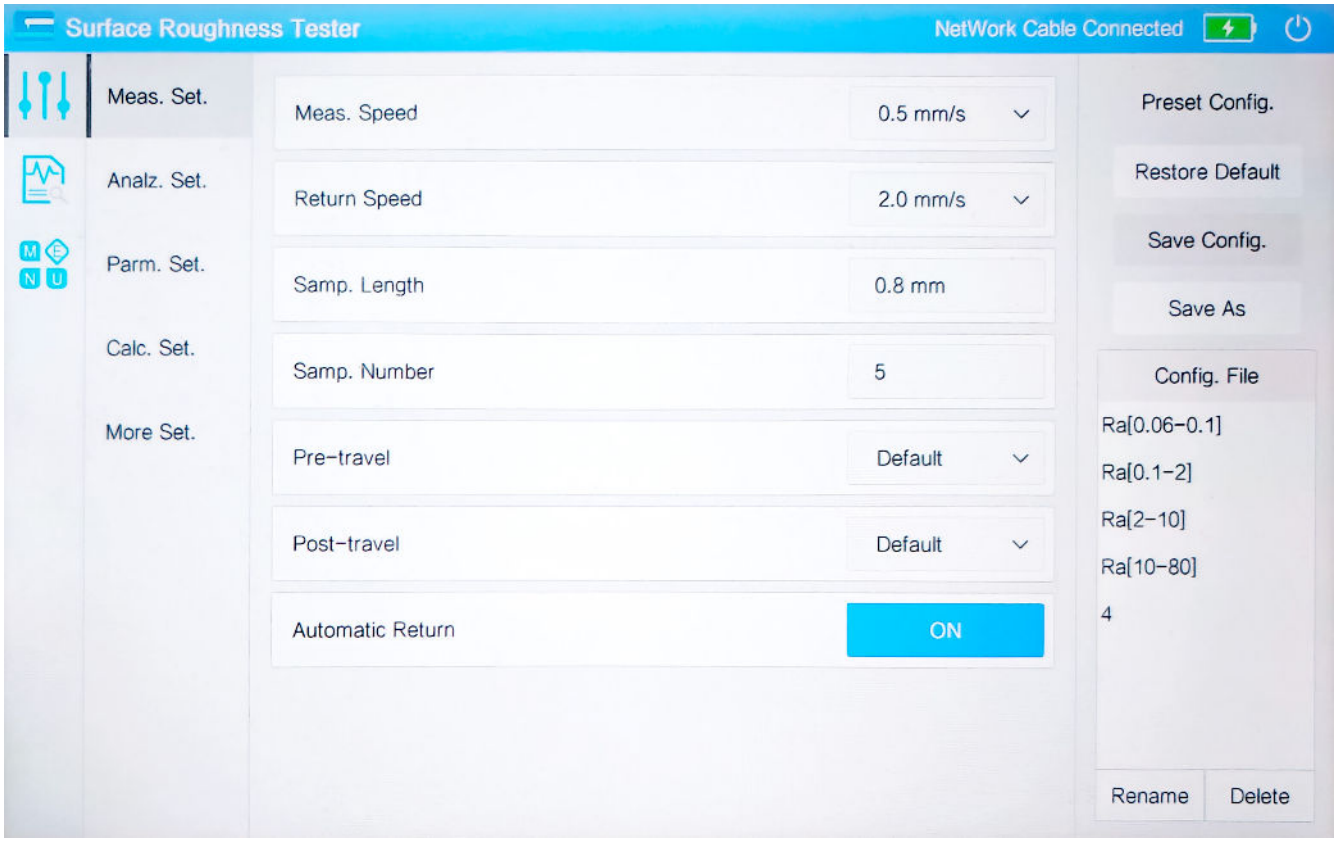
Usage Detail

- During sensor installation, align the stylus with the sensor measuring rod and push it in until the spring plate on the stylus clicks into the corresponding position for secure clamping. Install the sensor onto the lifting adjustment mechanism and tighten it using the provided screws.

- When using the equipment, the actuator should remain relatively parallel to the measured surface to ensure that the sensor does not exceed its measuring range during the measurement process, thereby guaranteeing the accuracy of the measured values and ensuring the safety of the sensor.
- Users can control the tilt angle of the guideway by adjusting the leveling disk located under the actuator, to ensure that the measured values do not exceed the measurement range throughout the entire measurement process.

Operation Interface

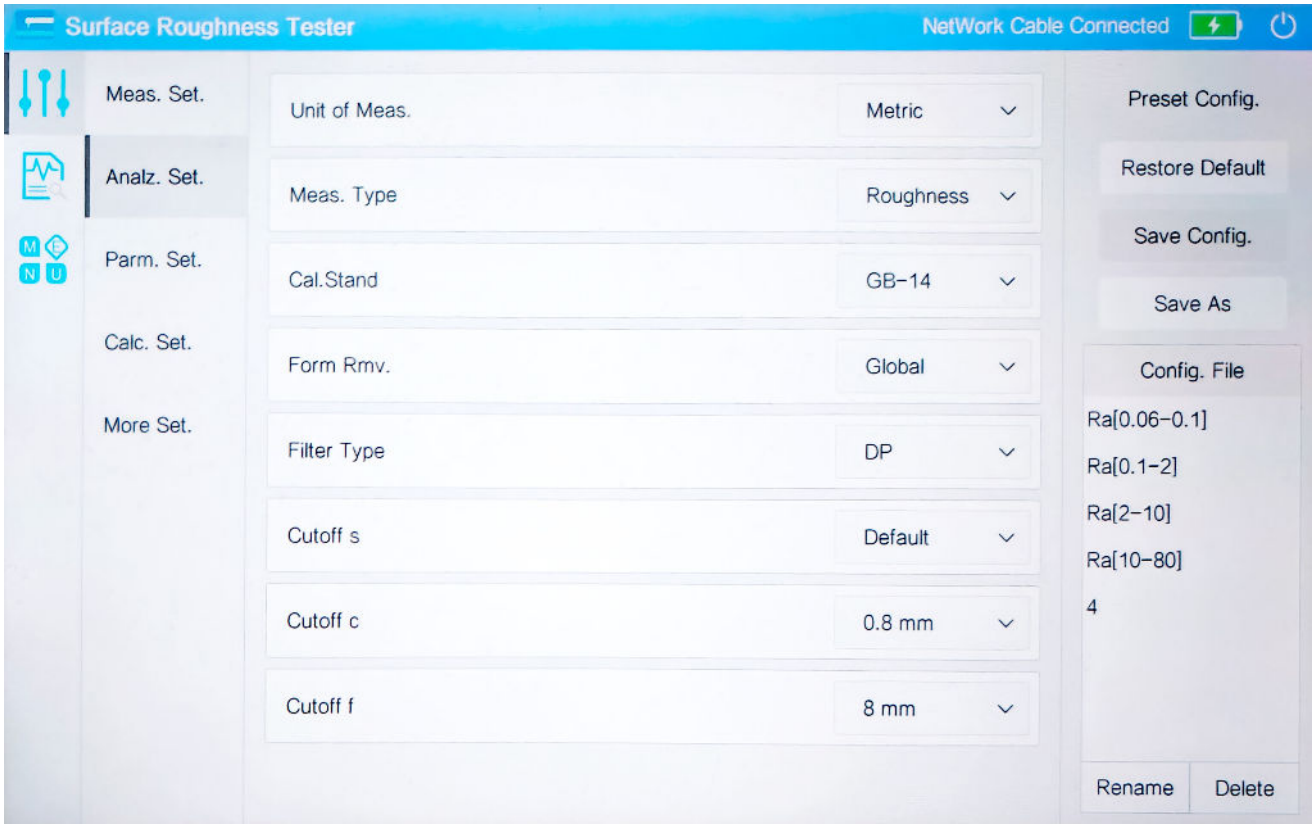
Measurement Setting



- Selection of Measurement Speed and Return Speed.
  Options: 0.05mm/s | 0.10mm/s | 0.50mm/s | 1.00mm/s | 2.00mm/s.
- Selection of Sampling Length and Number of Samples.
  Sampling Length Options: 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, etc.
  The number of samples can be set to any positive integer within the total measurement range, typically 5.
- Setting of Front and Rear Reserve Lengths.
  Options: Default | 1 Sampling Length | 1/2 Sampling Length | 1/3 Sampling Length | 0.
  It is recommended that users directly select "Default".
- Enabling and Disabling the Automatic Return Function.
  For ease of use, it is recommended to keep this function enabled at all times.

Operation Interface

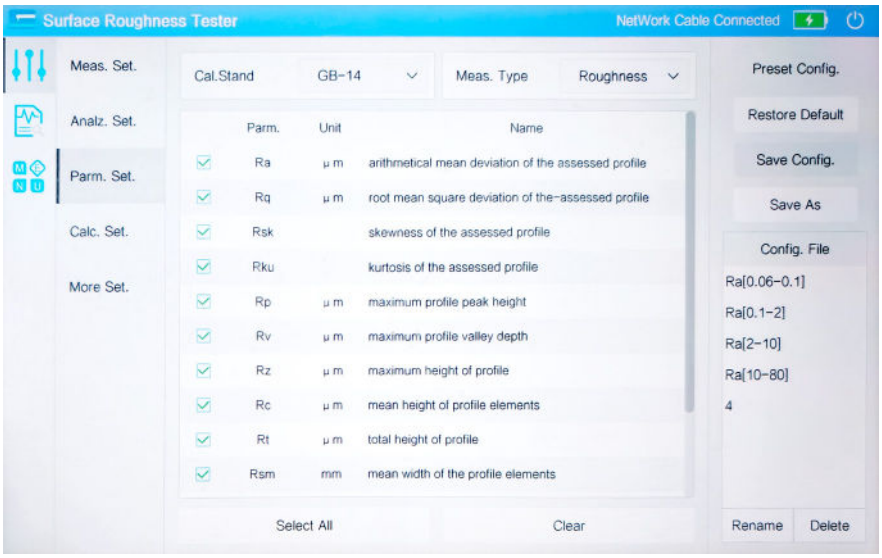
Analysis Setting



- Selection of Measurement Units: Metric and Imperial (2 options).
- 5 Measurement Types Available.
  Options: Roughness Profile | Waviness Profile | Primary Profile | Bearing Ratio Curve | Graph.
- Multiple Calculation Standards to Choose From.
  JIS-82 | JIS-87 | JIS-94 | JIS-01 | JIS-13 | ISO-84 | ISO-97 | DIN-90 | ASME-95 | GB-14
- 6 Shape Removal Methods.
  Options: Entire Area | First Half | Second Half | Center | 2 Points | Curve.
- 5 Filter Types.
  Options: Gaussian | FFT | PC | DP | 2RC.
- Selection of Cutoff Wavelengths, Based on Which Digital Filtering Algorithms Operate.
  λs Options: Default | 0μm | 2.5μm | 8μm | 25μm.
  λc Options: 0.08mm | 0.25mm | 0.8mm | 2.5mm | 8mm.
  λf Options: 0.8mm | 2.5mm | 8mm | 25mm.

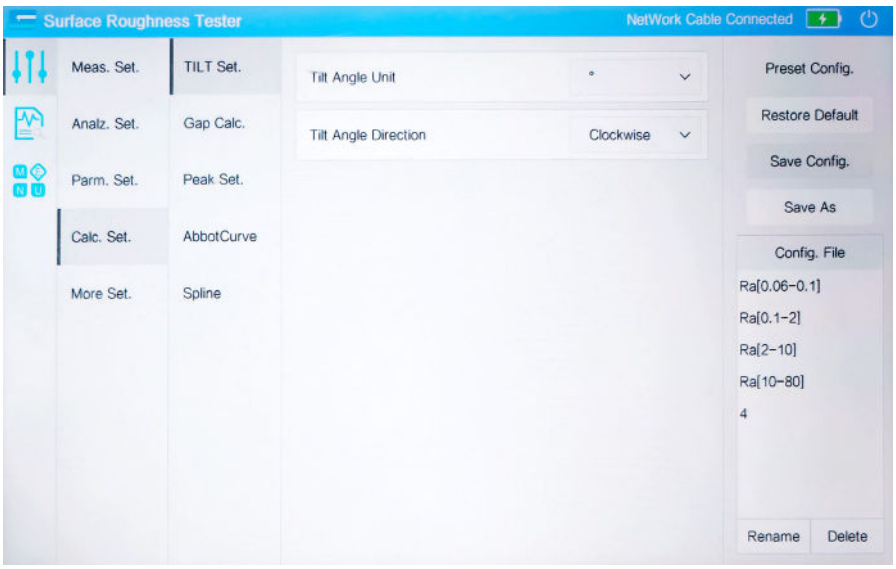
Operation Interface

Parameter Setting



- In this interface, users can select appropriate calculation standards and required measurement types, and tick the parameters they wish to display. Note that certain measurement types may not be available under some national standards.

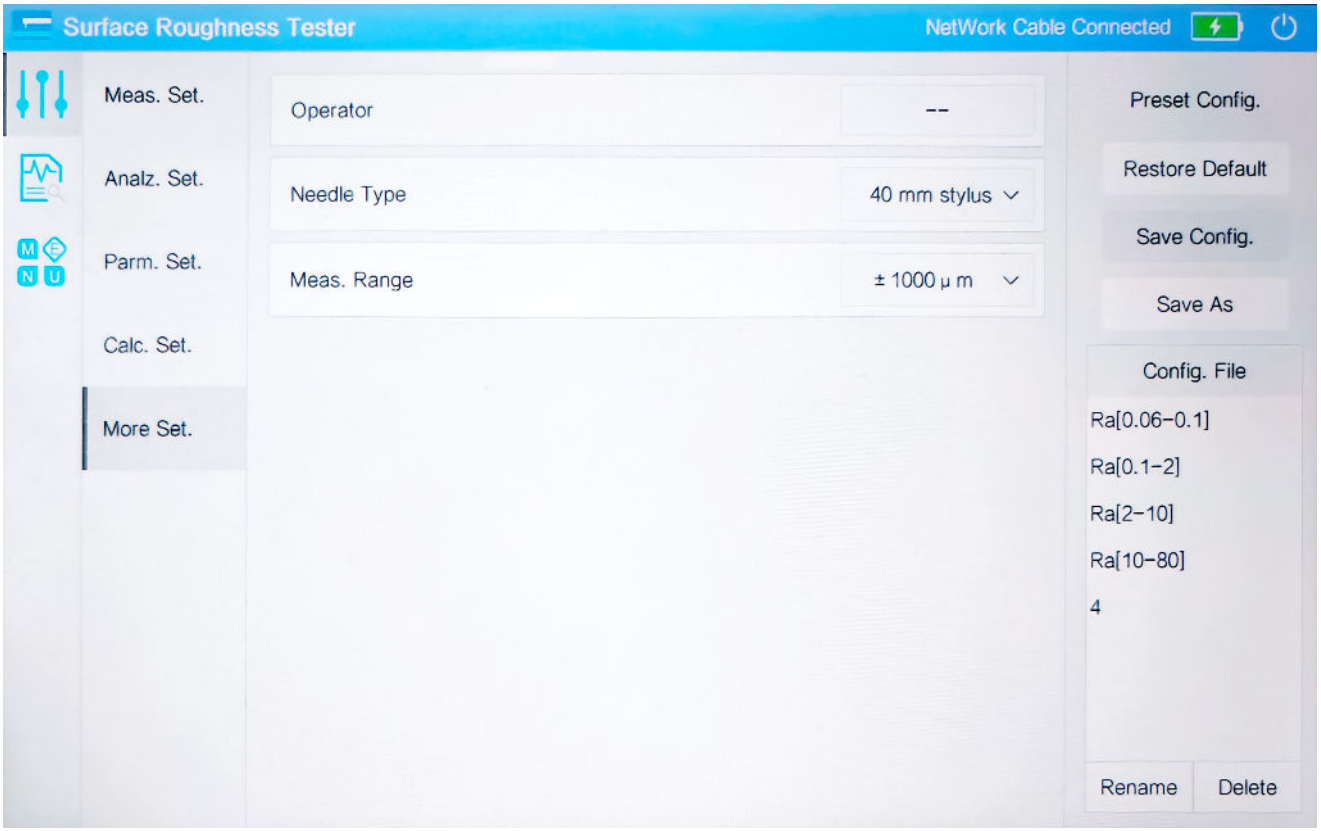
Calculation Setting



- In this interface, users can set and modify five calculation parameters: inclination angle, notch, peak count, bearing ratio curve, and spline curve.

Operation Interface

More Setting



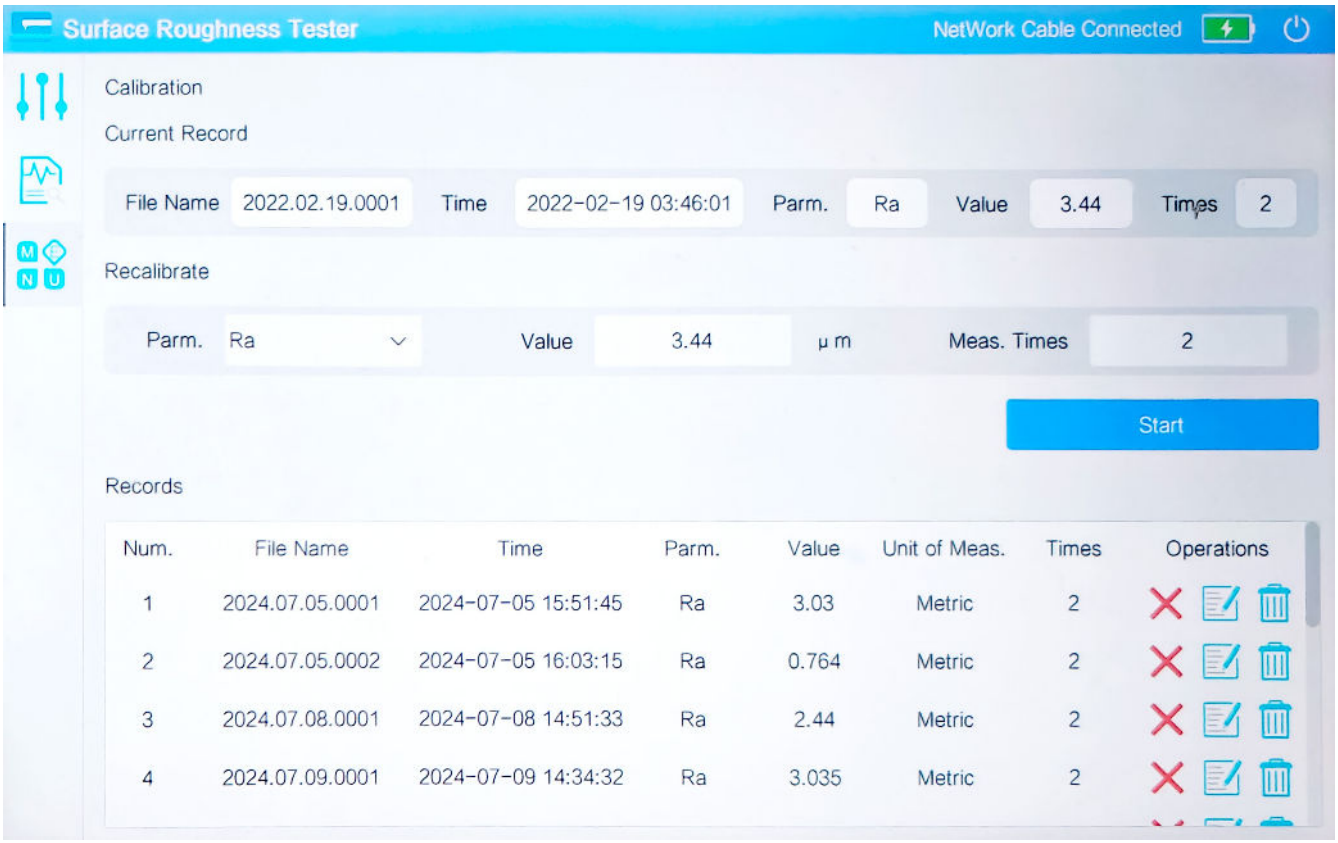
- Users can fill in the operator's name, which will be displayed in the printed report.
- Select the stylus type, with two options: 40mm stylus and 80mm stylus.
- Choose the measurement range: ±500 μm or ±25 μm.

Preset Configuration

- For user convenience, a one-click function to restore default parameters is provided on the right side of the screen, which can revert the aforementioned parameters to their default values.
- For parameter configurations that need to be used multiple times, users can save and name the configuration file. When needed again, it can be directly called up without repeated settings.

Operation Interface

Calibration



Calibration steps are as follows:

1. First, set the measurement type to roughness profile in the parameter settings.
2. Select Ra for the standard block setting.
3. Enter the standard value of the standard block
4. Set the number of measurements, with a minimum of 1 and a maximum of 5.
5. Click to start calibration.
6. After the measurement is complete, save the calibration data and set the data from thiscalibration as the current usage record.

Operation Interface

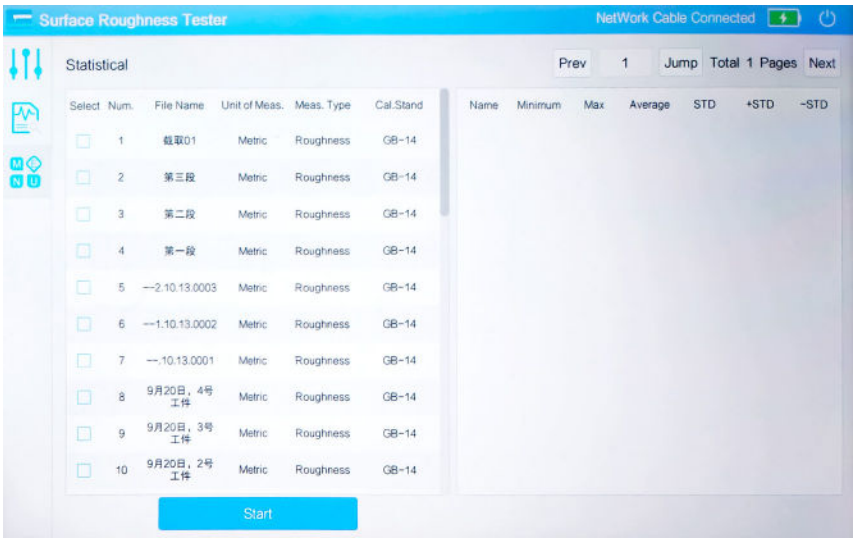
Qualified Judgment

The qualified judgment steps are as follows:

- 1.Select the judgment method, Two options are available: 16% Rule; Maximum Rule.
  2.To choose the judgment method, simply tick the box on the left side of the screen, andthen set the minimum and maximum values.
  3.Click "Start ".
  The judgment records will be displayed on the right side of the screen, allowing forrenaming, deletion, and printing operations on the records.

Operation Interface

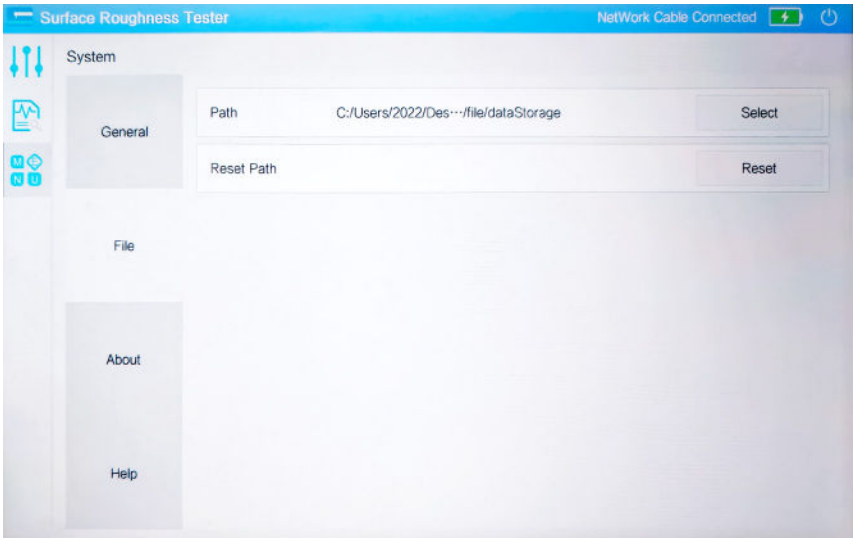
Statistical Processing



Steps for statistical processing:

- 1. Select at least two sets of data with the same measurement type and calculationstandard.
- 2. Click "Start Calculation".
- 3. The statistical results will be displayed on the right side.

File Management



- This interface allows you to change the data storage path and reset the default storage path.

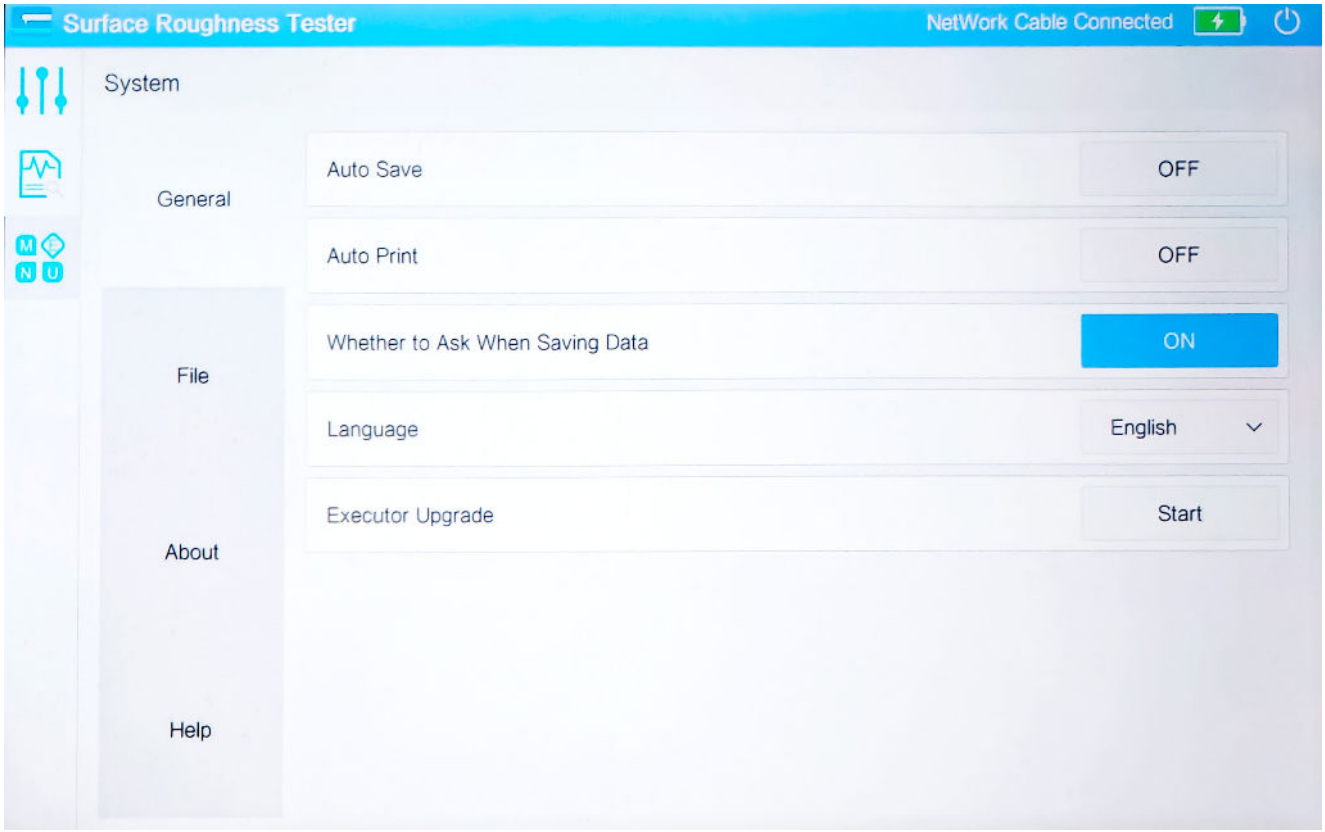
Operation Interface

Data Management

- This interface allows you to view saved data, including measurement type, measurement time, calculation standard, and filter type.
- After selecting data, you can view detailed information, rename or delete the data. If a printer is connected to the device, the selected data can be printed.
- Clicking the "Clear" button will erase all stored data.

Operation Interface

General Setting



- Auto-Save: When enabled, data will be automatically saved upon completion of measurement.
- Whether to Ask When Saving Data: When enabled, you will be prompted to confirm save information each time you click to save data.
- Language: Allows for toggling between Chinese and English language displays.
- Executor Upgrade: The actuator's bin file can be upgraded and written through the operator panel. Under normal circumstances, do not operate the "Executor Upgrade" function.

Mikrosize®

Technical Specification

Model			iSurfa-310
Range	**X Direction**		50mm
	Z Direction		±1000μm
Sensor Resolution	**X Direction**		0.0016μm/±50μm ~ 0.016μm/±500μm
Driver	**Straightness**		1μm/50mm
Analysis Algorithm	**Corresponding Standard**		JIS-82, JIS-87, JIS-94, JIS-01, JIS- 13, ISO-84, ISO-97, DIN-90 , ASME-95 , GB-14
	Parameters	**Roughness Profile**	Ra75, Rq , Rp, Rv, Rc , Rt , S, R3z , PPI , Ra , Rsk , Rku, Ry, Sm , RΔa , RΔq , Rz , Pc , Rλa , Rλq , lr , RSm, Rz94, RPc , RS , Rz.I , Rpm , HSC
		Waviness Profile	WCA, WCC-q , WCC-p , WCC-v , WCC-m , WCC-Sm, WCA , WC-q , WC-p , WC-v , WCM , WC-Sm, WC-t, Wa , Wq, Wsk , Wku , Wp , Wv , Wz , Wc , Wt, WSm, WΔq , WPc
		Primary Profile	Rsk, Rku , Rmax , Sm , Δa , Δq , Rz , λa , λq , lr , TILT A, AVH , Hmax , Hmin , AREA , Rz.J , Pa , Pq, Psk, Pku, Pp , Pv , Pc.I , Pt , PSm , PΔq , PPc, Pc
		Abbott Curve	Rk, Rpk, Rvk, Mr1, Mr2, V0, K, A1, A2
		Motif	NCRX , AR, R, Rx , NR, CPM , SR, SAR, AW , W, Wx, Wte , NW , SW , SAW, Rke , Rpke , Rvke , Mr1, Mr2, V0, K

Technical Specification

Analysis Algorithm	**Evaluation Curve**		Roughness profile, Waviness profile, Primary profile, Abbott curve, Motif
	Characteristic Curve		Abbott curve(Rmr(c) , Rmr2(c) , Rδc(c) , tp(c), tp2(c), Htp(c)) , Amplitude frequency analysis curve, amplitude distribution curve
	Form Remove		global, first half, second half, center, 2 points, curve
	Filter type		Gaussian, FFT , PC , DP, 2RC
	Filter Wave Length	**λs**	0 , 2.5 , 8 , 25μm
		λc	0.08 , 0.25 , 0.8 , 2.5 , 8mm
		λf	0.8 , 2.5 , 8 , 25m
Evaluation length			Sampling length × number of samples (sampling length has standard mode and custom mode)
Measurement Speed			0.05mm/s , 0. 10mm/s , 0.50mm/s , 1.00mm/s , 2.00mm/
Return Speed			0.05mm/s , 0. 10mm/s , 0.50mm/s , 1.00mm/s , 2.00mm/
Sensor	**Mode**		Standard universal type

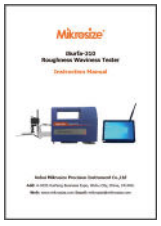
Technical Specification

Sensor	Sensor Mode	Differential inductance
	Range	±1000μm
	Stylus	5μmR diamond 90°
	Contact Force of the Stylus	Adjustable from 0.4 to 0.75mN
Operator	Display Part	10-inch color IPS touch screen
	Data Output	TF card/U disk/WIFI printing
	Corresponding Language	Chinese/English
Dimensions and Weight	Power Supply	AC220V±10% Built-in Rechargeable Battery (Charged via AC Transformer) Charging Time: 8 Hours
	Power Consumption	About 30VA (Capable of 800 measurements after being fully charged)
	Quality	N.W 4Kg; G.W 8Kg
	Dimensions	Actuator 80 (W) ×392 (L) × 180 (H) Operator 245 (W) × 162 (D) ×68 (H)

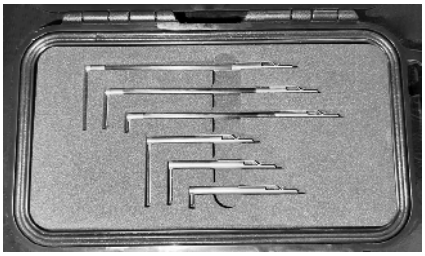
Standard Delivery

Name	Qty	Photo
Host Actuator	1 Unit	
Sensor	1 PC	
10-Inch Pad Operator	1 Unit	
Host Charger	1 PC	/
Pad Charger	1 PC	/
Standard Stylus	1 pc	

Standard Delivery

Name	Qty	Photo
Roughness Standard Test Block	1 PC	
Data Communication Line	1 PC	/
Host Waterproof Case	1 PC	/
Random Tools	Allen wrench (1.5mm and 2.5mm)	/
Product Certificate	1 copy	
Product Manual	1 copy	
Warranty Card	1 copy	

Optional Delivery

Name	Photo
X-Y Axis Test Table	
Fixture	
V-shaped Test Table	
Stylus	
Measurement Platform