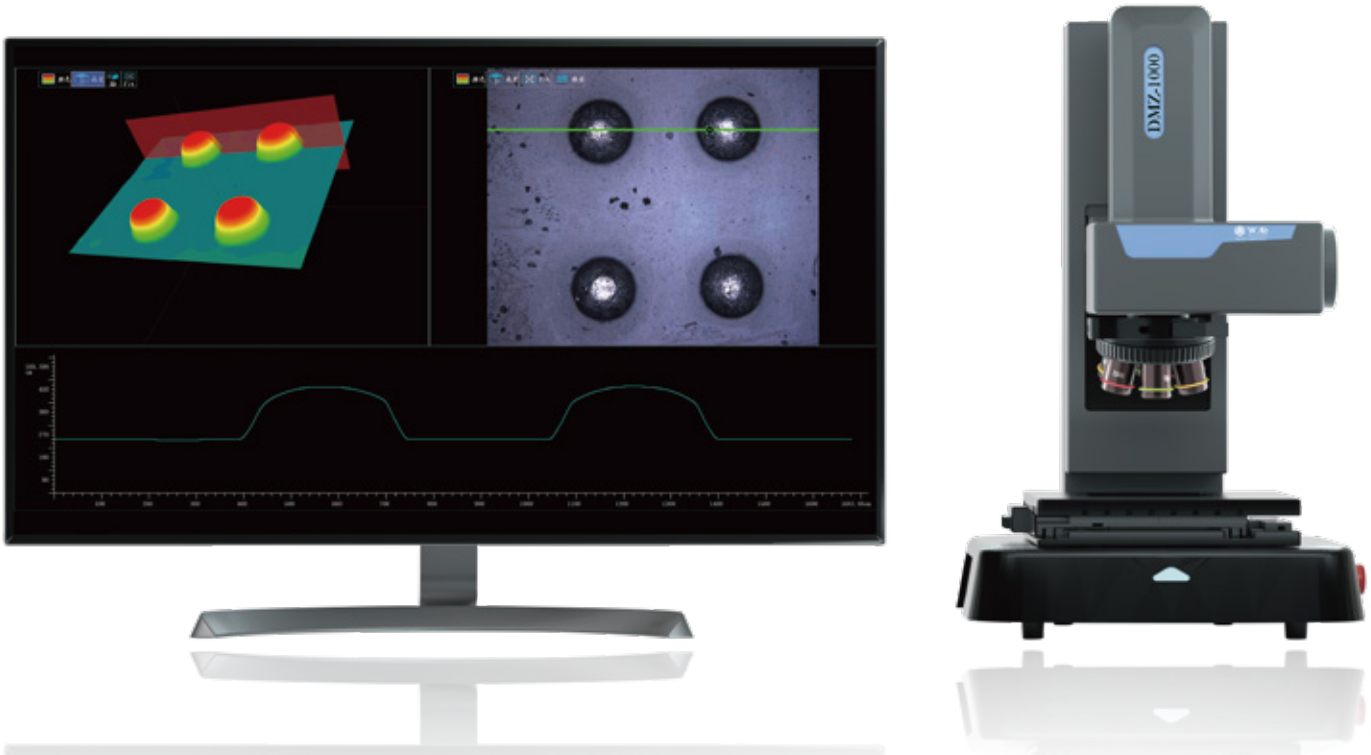
西勵
TECHNOLOGY AND INNOVATION
显微自动化 • 智能精密光学检测

DMZ1000 Series

Microscopic Automation System

Fast、Accurate、Intelligent



Lionhearted Vision:

Cored by optics and algorithm,
offer intelligent detection solution for users

Lionhearted Products:

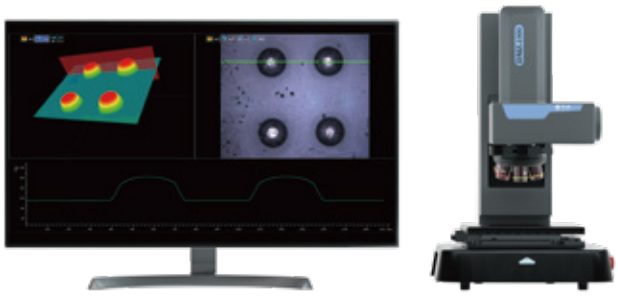
Precise optics + AI,
intelligent microscopic detection

Company Profile

Lionhearted Science and Technology (the Company) insists on promoting the transformation and upgrade of intelligent detection devices by adhering to “Cored by optics and algorithm, offer intelligent detection solution for users”, and applies the microscopic optical imaging technology and image algorithm in the detection technology. As a leader in the industry such as microscopic image technology, auto defect detection of 5G connectors and automobile granularity detection, the Company focuses itself in serving the clients in industry field, and helps the industrial enterprises develop the intelligent detection through the microscopic imaging technology, image algorithm, test plan application technologies and products.

The Company mainly provides detection technology plans and detection equipment for users. Its products cover the multiple aspects in the industrial fields such as defect detection, intelligent manufacturing, laboratory physical and chemical solutions. Through 20 years of exploration and accumulation, the Company has accumulatively served almost 2,000 industrial clients which cover the industrial fields such as micro-electronics, automobile parts and intelligent equipment; its clients include the famous enterprises at home and abroad, such as Foxconn, Sunny, AAC Technologies, Cremix, Bosch, Weichai, Huawei, Ofilm and Luxshare.

DMZ1000 Series



DMZ1000

Not just 3D splicing and measurement

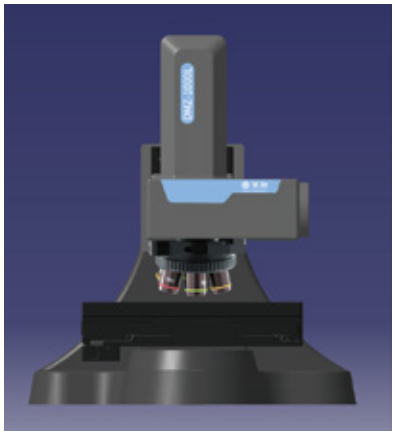
Centralized expression of microscopic image technology

Platform stroke: 100 * 100 mm

DMZ1000 D

DMZ1000D has deep customization of hardware & software for clients in PCB industry to meet their varying demands.

Platform stroke: > 300 * 300 mm



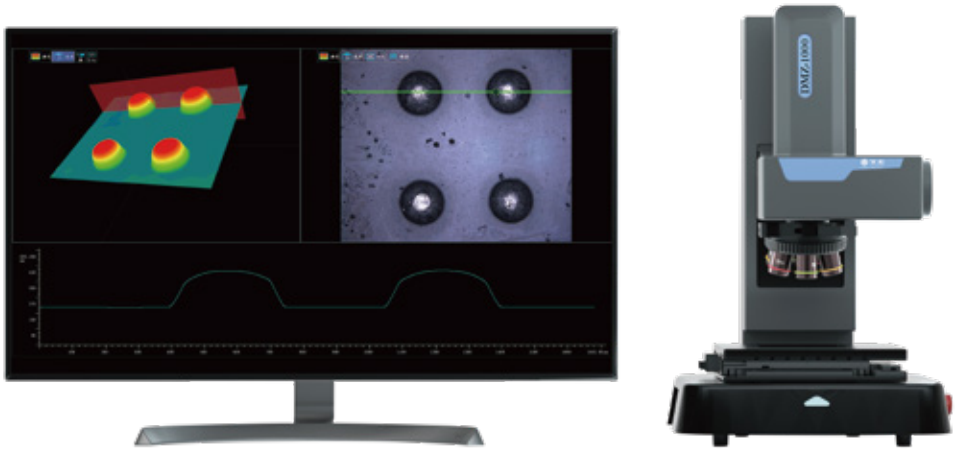
DMZ1000 L

Fitted with the objective table with higher stroke on basis of standard configuration, to carry the larger and heavier samples and meet the varying detection demands of clients.

Platform stroke: 200 – 300 mm

DMZ1000

Microscopic Automation System



What is a microscopic automation system?

The microscopic automation system, which consists of microscopic imaging system, platform motion control system, PLC workstation and professional software, can realize one-key acquisition, measurement and analysis with less manual intervention, to reduce the artificial errors due to manual intervention, effectively improve the monitoring efficiency. It can send the data to clients' MES system in real time with the help of Q-DTS data interconnection platform, to further improve the efficiency of data processing.

Definition of Microscopic Automation

Composition of Microscopic Automation

a.Microscopic imaging system

b.Motion platform and embedded control system

c.PC and professional analysis software

Microscopic automation

Purpose of Microscopic Automation

a.Reduce manual intervention

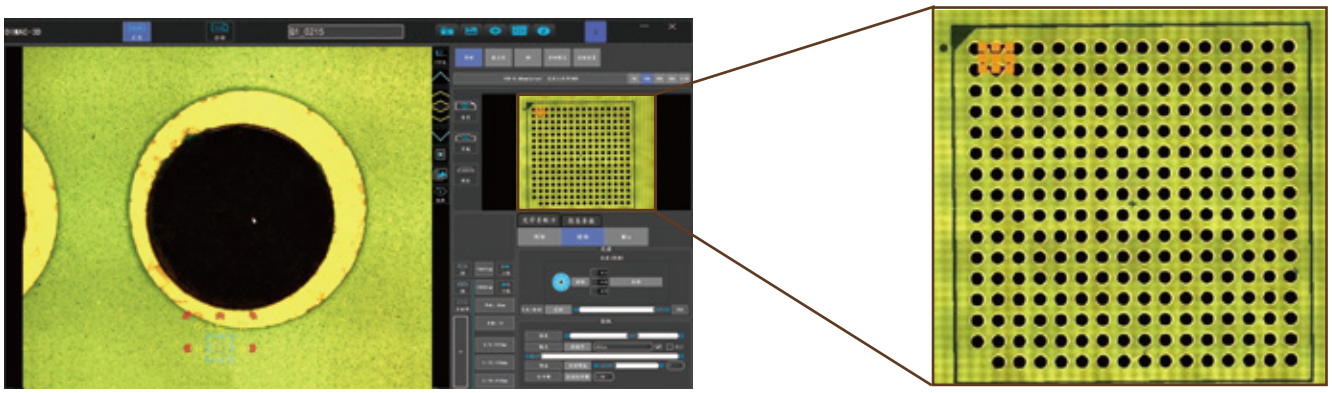
b.Improve detection efficiency

c.Digital revolution wave

Map Navigation Chart

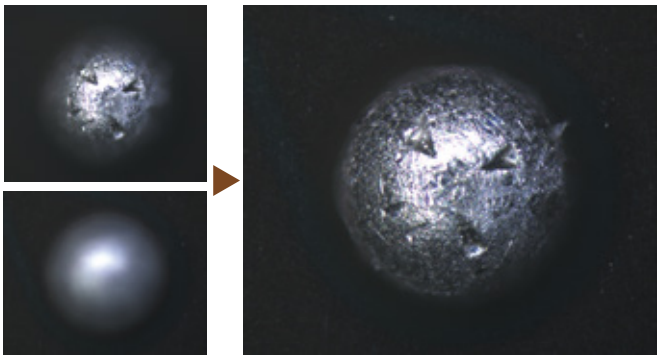
One-key auto splicing of 2D and 3D picture and support three splicing modes: Select row number, splicing length, or set the splicing start/end point based on sample characteristics; scan the sample and generate Map navigation chart at low speed, then quickly locate the observation position at high speed, to realize 3D topography analysis. After zoom-in, the system will still show the position of current view in Map navigation chart, to avoid loss of view during analysis.

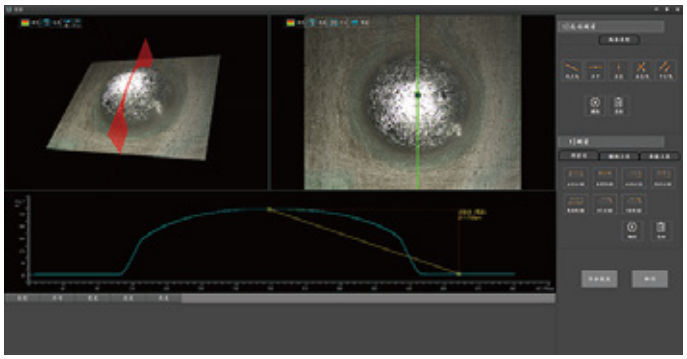
Macro Map Navigation Chart



3D Image Acquisition

Overcome the problem of depth of field in traditional microscope, acquire the three-dimensional topography of product for 3D data analysis.



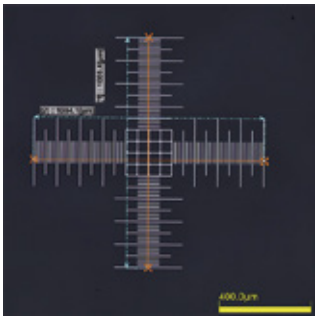


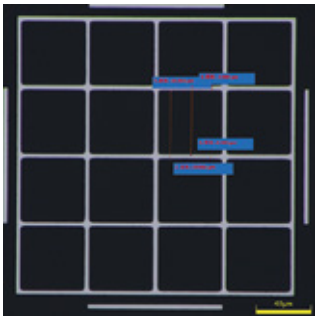
Fast

XY is fitted with linear motor drive platform, its motion speed is 4 times higher than that of common screw rod transmission platform.

Accurate measurement

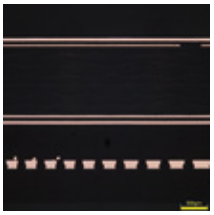
XYZ axles are fitted with built-in 0.1μm high-accuracy grating scale, to realize high-accuracy positioning, and guarantee accurate measurement with the help of advanced image algorithm.

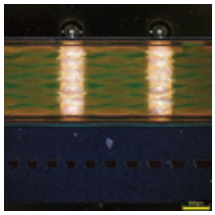


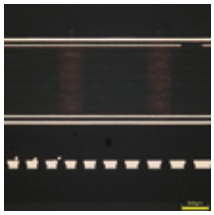


Multiple optical observation modes

The system provides multiple modes, such as bright field, dark field, mixed lighting, polarized light, differential interference, near infrared and fluorescence.







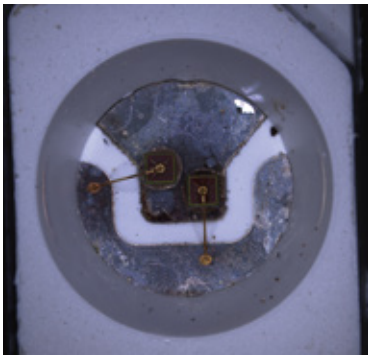
Electric objective lens converter

Mounted with electric objective lens converter to have one-key switch of different objective lens. The real-time matching of ruler can ensure easy observation and measurement.

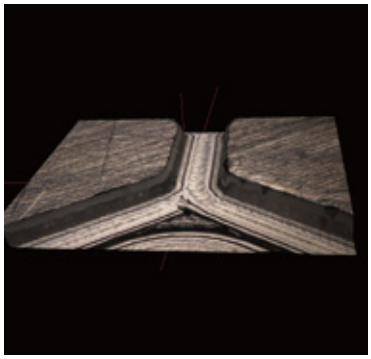
Applications of DMZ1000

Fusion depth measurement of welding and riveting

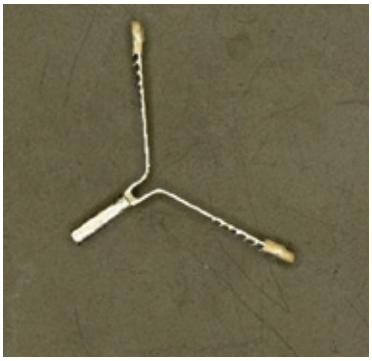
LED



Micro-channel

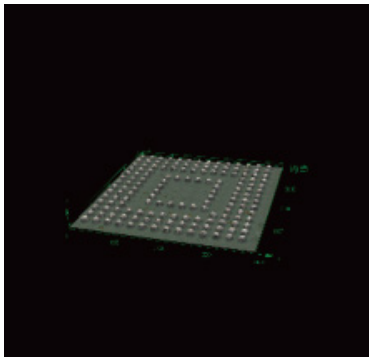


Implant

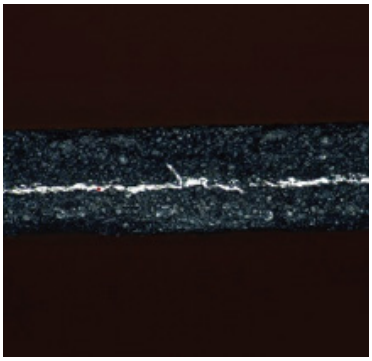


Bionics

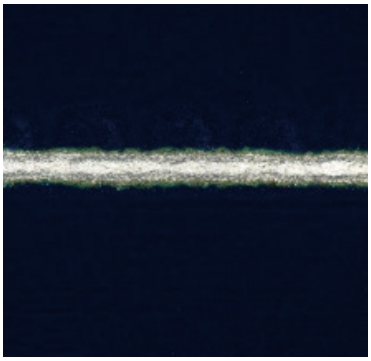
BGA



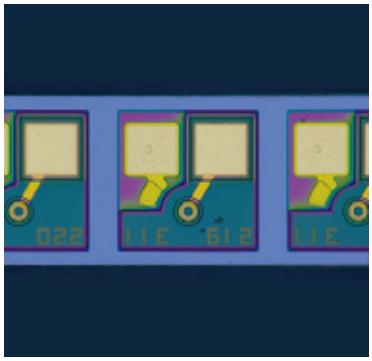
Burr detection of lithium battery



Solar cell



VCSEL chip detection



Technical Parameters

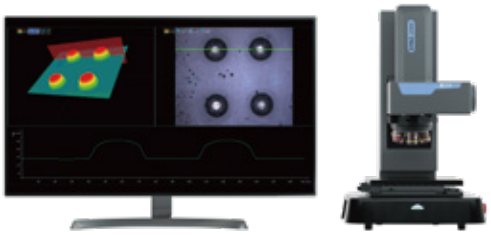
Optical system	Magnification range	150X – 600X, 1500X (optional)
	Observation modes	Bright field, dark field, mixed lighting, polarized light, differential interference, near infrared and fluorescence
	Lens level	Semi apochromatic color difference elimination, bright and dark field objective lens
	Lens magnification	5X, 10X, 20X, 50X (optional)
	Magnification switch	Electric adjustment, WDI auto-focusing module (optional)
Electric control system	Axis Z stroke	90mm
	Axis Z resolution	0.1um
	Platform stroke	Electric 100mm * 100mm, large-size platform can be customized
	Platform load capacity	3kg
	Platform dimensions	260mm*260mm
	Platform resolution	0.1um
Camera system	Effective pixels	2/3 in，500megapixels，2464*2056
	Dynamic range	12 bit
	Field range	3.52 mm ~ 0.88 mm (the final field range depends on the objective lens)
Software system	Panorama 2D/3D acquisition system	
	Acquisition and positioning function of navigation chart	
	Hatching line measurement function	Measure the relevant data such as length, width, height and angle
	Plane measurement function	Relevant data such as dot pitch, line distance, arc, angle and area
	Macro function	Multi-point auto acquisition function
	Traceability analysis	Tracking and analysis of original document
	Optional Q-DTS data interconnection module	
	Support customization of software function	
	Picture output format	JPG、BMP、PNG、Dimac etc.
Computer system	Professional IPC	IPC – 5120, 32G memory, 256G SSD, 1TB HDD
	DELL monitor	27in 3840 × 2160 (4K) Brightness 350 cd/m2 refresh rate 60Hz

DMZ1000 D Series

PCB Microscopic Automation System

DM1000D provides in-depth customization of hardware and software for clients in PCB industry, to meet their varying demands.

Customized Hardware Plans



Fitted with the outstanding linear motor system, DMZ1000D breakthroughs the restrictions of dimensions, accuracy and speed of stepping motor and servo motor platform.

It can be mounted with negative pressure absorption system, to ensure higher stability and accuracy of measurement.

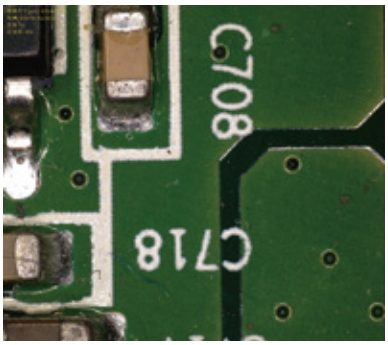
Excellent Optical System

DMZ1000D supports multiple lighting modes such as bright field, dark field, MIX (mixed light) and polarized light, and it can be fitted with different light sources such as fluorescence, infrared and spectral confocal system, to adapt to different application scenarios.

Mounted with high-performance and high-aperture (NA) objective lens, to provide excellent light system for microscopic imaging.

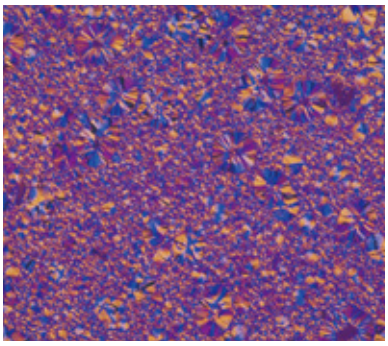
Bright field

Dark field

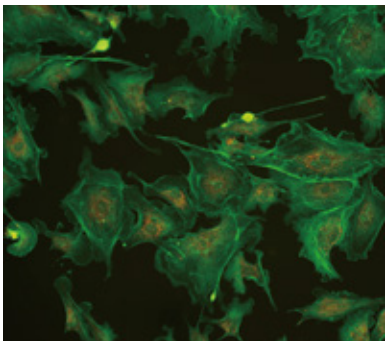


MIX

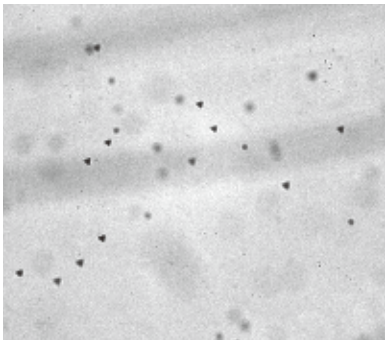
Polarized light



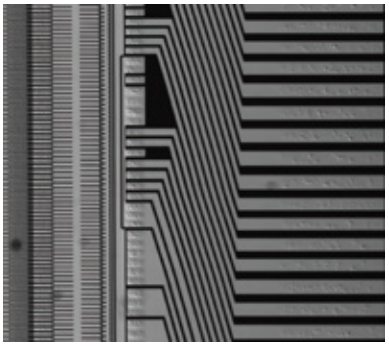
Fluorescence



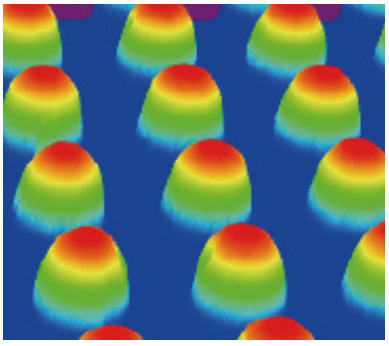
Infrared



DIC

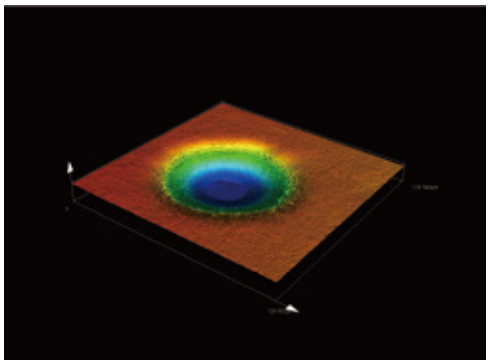


Spectral confocal system

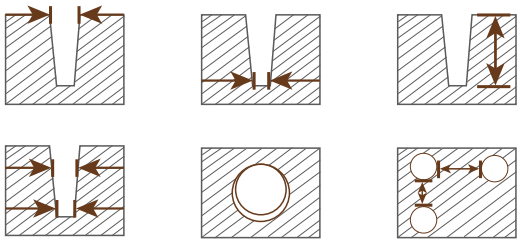


Professional Analysis Software

Fitted with improved and auto measurement tools for line width, line distance, upper/lower aperture, depth and aperture ratio of blind hole.



Blind hole

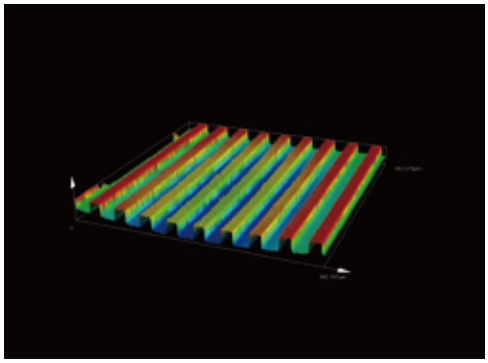


Upper aperture

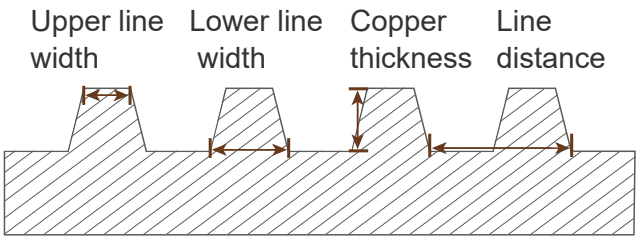
Lower aperture

Hole depth

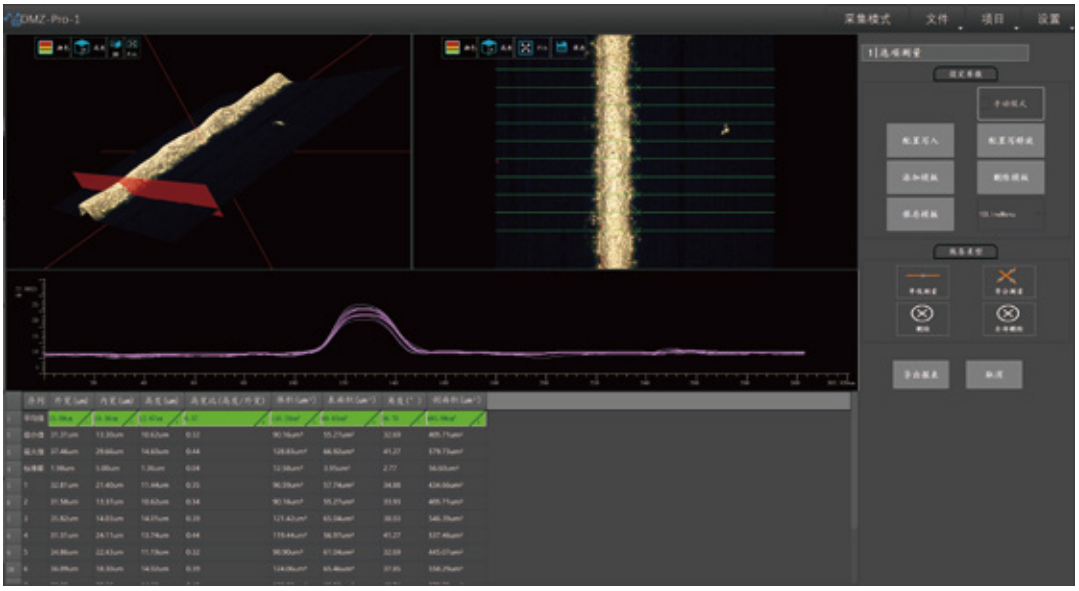
Raito between upper and lower aperture



Line

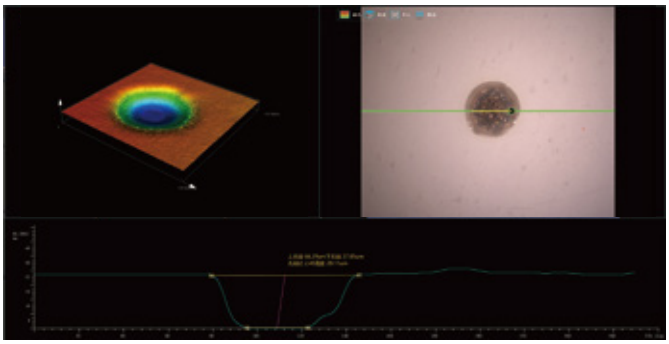


Provide improved auto data report on the outer width, inner width, height, height ratio, volume, surface area, angle and sectional area in the PV industry.

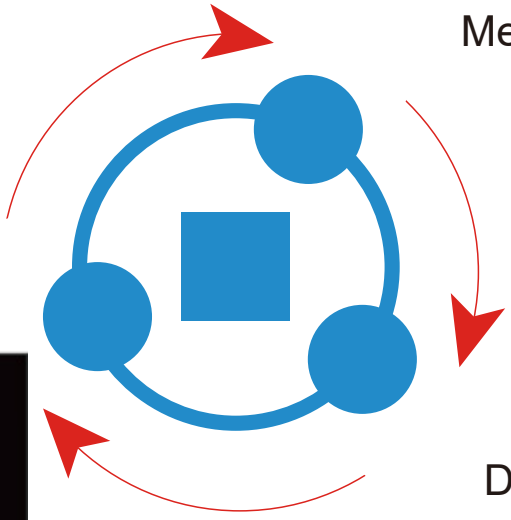


Professional Analysis Software

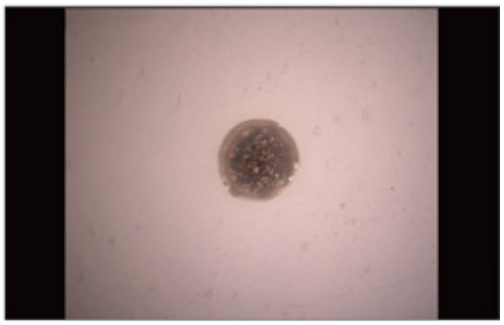
The professional analysis software DMZ-Pro mounted on DMZ1000D can realize batch acquisition, measurement and analysis of samples.



Measurement

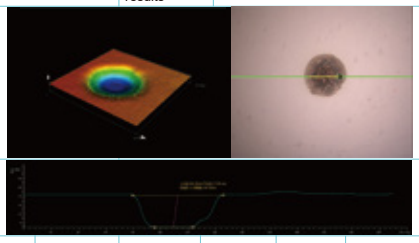


Acquisition



Data upload

DMZ-Pro Report					
Company Name	Jiangsu Lionhearted Science and Technology	Operator	Test-01	Date	DD/MM/YY-XX: XX: XX
Light source	BF	Sample name	PCB		
Magnification	50X	Detection contents	Blind hole		
Field of view	270.13*225.29um	Detection results	OK		

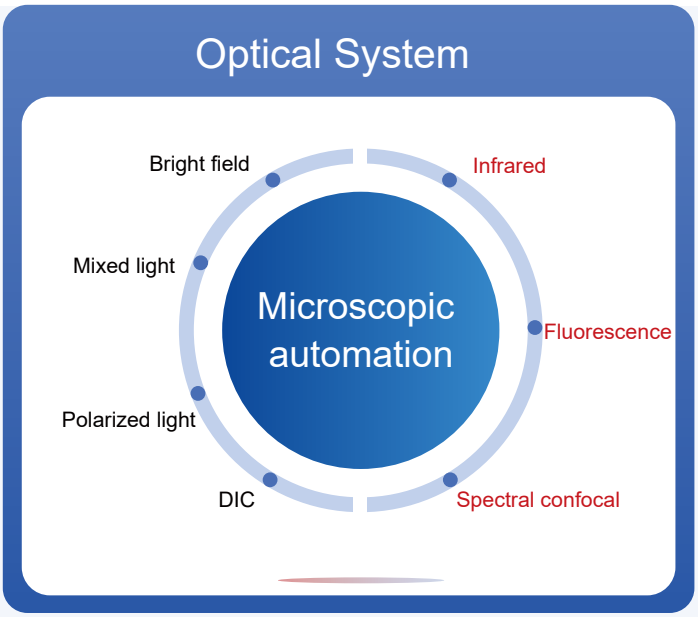


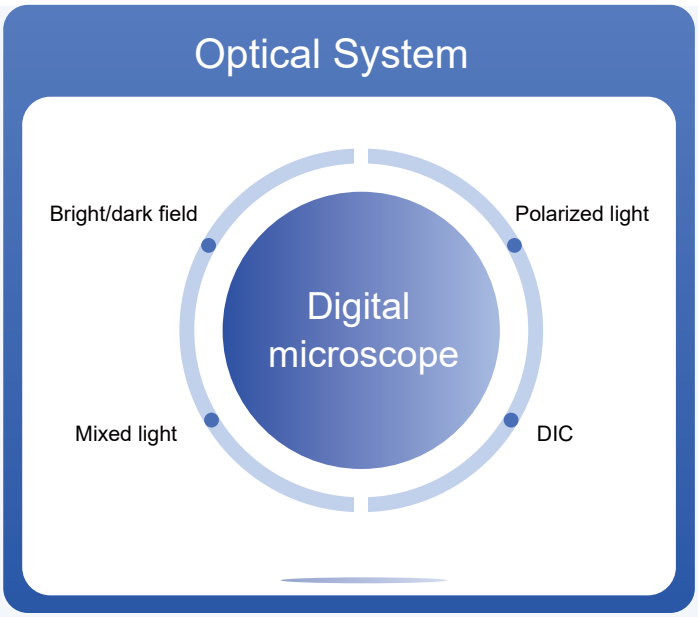
Type	S/N	Upper hole aperture	Lower hole aperture	Aperture ratio	Height
Aperture	1	66.3	27.8	2.38	28.8

Technical Parameters

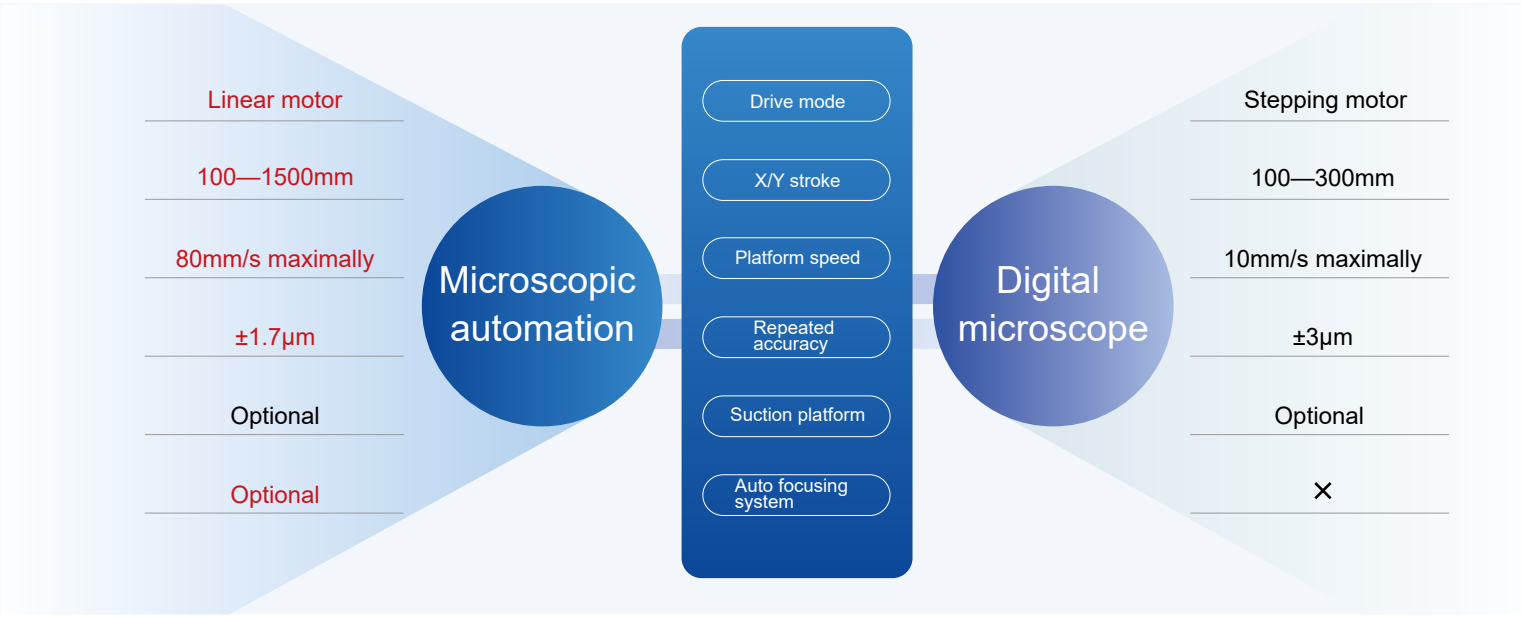
Microscopic system	Optical system	Infinite correction of optical system, fitted with spectral confocal system (optional)
	Objective magnification	5X, 10X, 20X (standard configuration), 2.5X, 50X, 100X (optional)
	Comprehensive amplification factor	150X ~ 600X (standard configuration) (the final amplification factor depends on the objective lens)
	Lighting mode	Bright field, dark field, mixed light (standard configuration), polarized light, DIC (optional)
	Light source	LED light source (standard configuration), design life 60,000h, infrared and fluorescence (optional)
Motion system	Axis Z stroke	50mm (standard configuration), electric
	Platform stroke	700 * 600 mm (standard configuration), electric
	Platform load capacity	30KG
	X/Y repeated accuracy	±1.7 μm
	X/Y/Z grating scale resoolution	0.1 μm
Camera system	Effective pixels	2/3 in, 5 megapixels, 2464 * 2056
	Dynamic range	12 bit
	Field range	3.52 mm ~ 0.88 mm (the final field range depends on the objective lens)
Software system	Panorama 2D/3D acquisition system	
	Acquisition and positioning function of navigation chart	
	2D measurement	Measurement tools such as dot pitch, line distance, arc, angle and area
	3D measurement	Measurement tools such as length, width, height, angle and volume
	DMZ-Pro is fitted with PCB professional measurement tools such as line width, line distance, upper/lower aperture of blind hole and aperture ratio	
	Q-DTS data interconnection module (optional)	
	Support customization of software functions	
	Picture output format	JPG, BMP, PNG, DIMAC, etc.

Difference between Microscopic Automation System and Traditional Digital Microscope



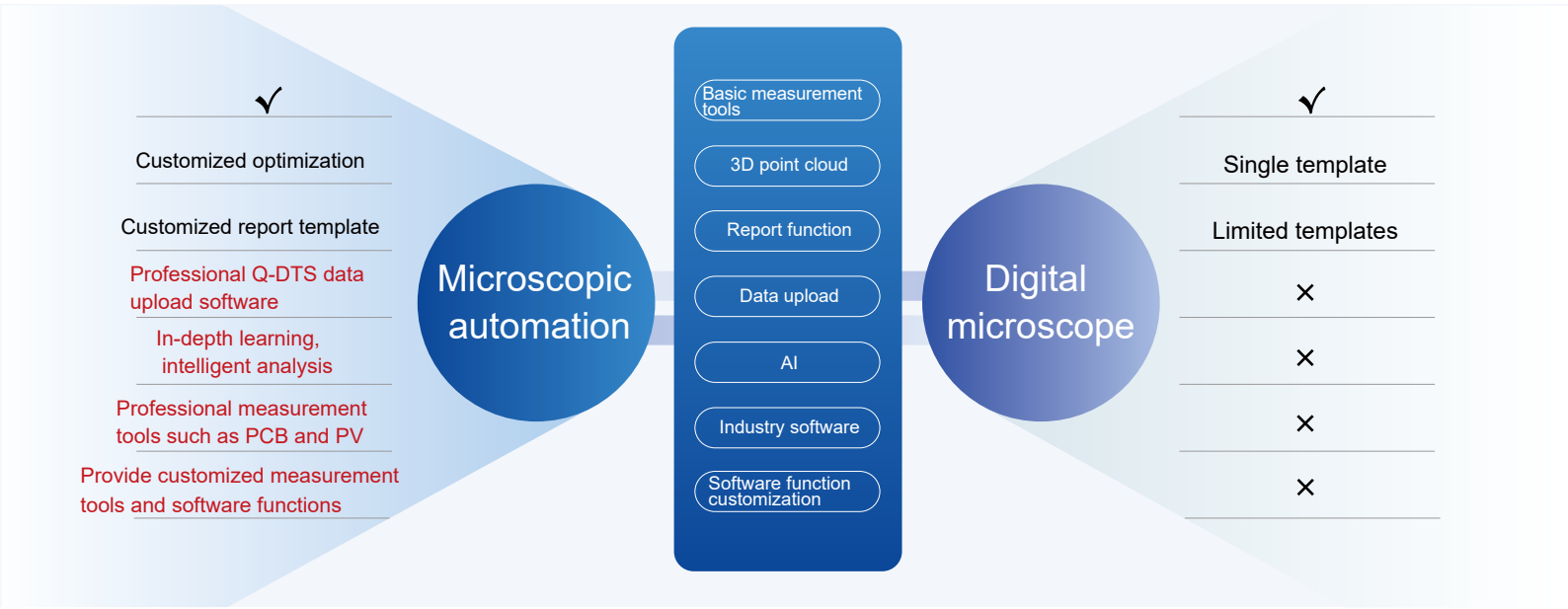


Comparison between Electromechanical System



Difference between Microscopic Automation System and Traditional Digital Microscope

Comparison of Software System



Merits of Microscopic Automation – Full-stack Technology Capability

Mechanical system

- Driven by linear motor
- High-accuracy platform
- Accurate positioning, fast, efficient and integrated structure
- Meet customization demands of different clients

Optical system

- Excellent optical system
- Fitted with multiple lighting modes such as bright field, dark field, mixed light, polarized light and DIC
- Fitted with different light source systems such as LED, infrared, fluorescence and spectral confocal system

Electric control system

- Built-in control system
- Fast response, safe and reliable auto-focusing technology
- Improve detection efficiency effectively

Software system

- Customized software
- One-to-one optimization of client application
- Q-DTS data interconnection platform
- Simple data processing and AI in-depth learning
- Fast and accurate image analysis

Other products

ProEye 01

Auto Defect Detection Device of Semiconductor

ProEye 02

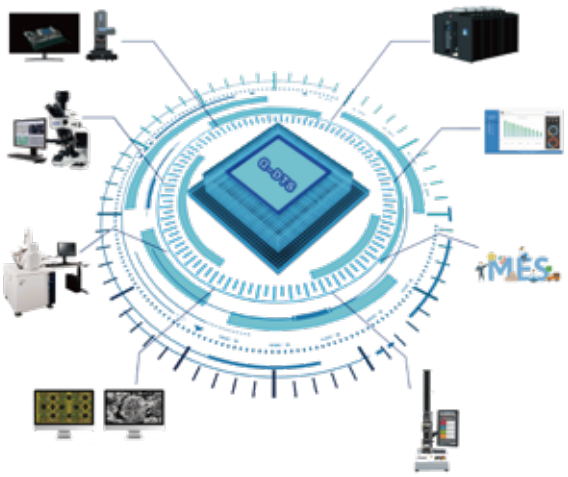
Auto Infrared Detection Device of Semiconductor

MTS系列

Tropology Measurement Device

Q-DTS

Intelligent Data Interconnection Platform



CONTACT US

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Tik Tok Official Account

WeChat Official Account