
Focused on R&D and manufacturing of
imaging instruments and vision products



TVN-3D3000M_B

**3D Extended Depth-
of-Field Microscope**

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Imaging Functions

Simply move your finger for instant full-focus imaging

Through improved EDF algorithms, focus information is automatically recognized as you move to the target position, instantly delivering a fully-focused image. This innovative observation method meets the general needs of magnified inspection.



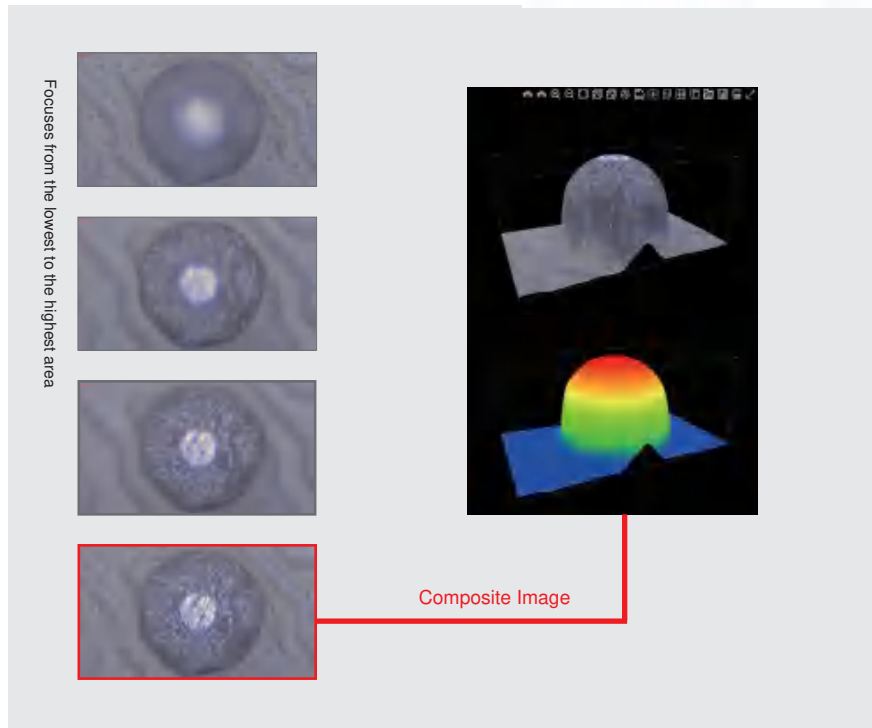
Target Position
Always Fully Focused



3D Display

Even when the target has bumps or recesses, a fully-focused image synthesized from images at different focal planes is obtained instantly. Moreover, 3D display lets you freely observe the surface shape from every angle, and the 3D image is conveniently shown at the press of a console button.

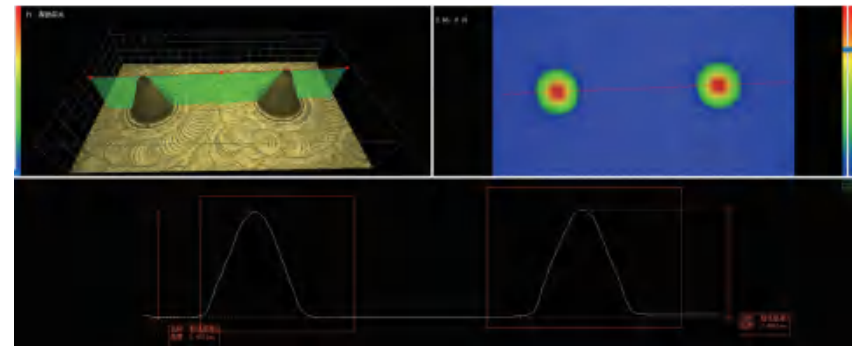
Simply press the controller button



Composite Image

3D Measurement

Measure directly on the 3D modeled image; with a rich set of auxiliary guide tools, dimensional measurement of complex samples is completed efficiently. Saved 3D model files still support re-measurement and analysis.



Area Measurement

Area measurement can be performed while the 3D image is being acquired.



Point Height Measurement

Click two points on the screen to quickly read the height value; multi-point height measurement is also supported.



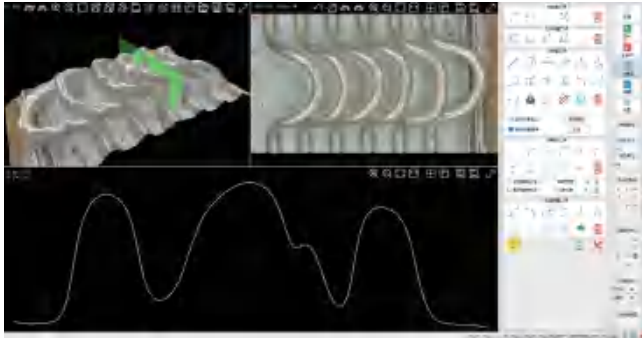
Automatic Fitting-Point Extraction

Intelligently extracts points along the product edge for fitting, automatically identifies the edge line and corrects point-selection errors in time, greatly reducing manual operation errors.



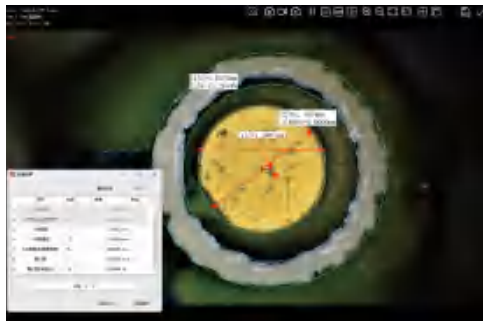
Observation with Simultaneous Real-Time Measurement

With simple mouse operations, multi-point distance, angle, diameter, parallel-line and area measurements are performed in real time directly on the imaging view. Measurement data can be archived with the image, and saved images support re-measurement. The bundled client software opens the 3D model on any computer for omnidirectional observation.

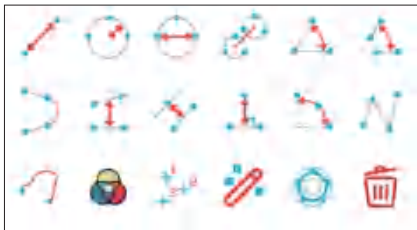


2D Measurement

After acquiring an image, measure it in real time. Saved images can be recalled, and the comprehensive measurement tools support arbitrary-layout measurement; auxiliary guide tools further improve measurement of complex workpieces.



Comprehensive 2D Measurement Tools



Auxiliary Tools



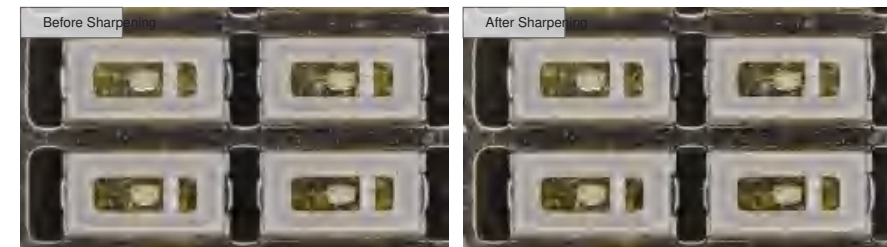
Anti-Reflection (Wide Dynamic Range / HDR)

For samples with extreme contrast, multi-exposure image fusion restores both bright specular highlights and shadow detail. Without repeated exposure adjustments, a fully detailed image is output for efficient defect inspection.



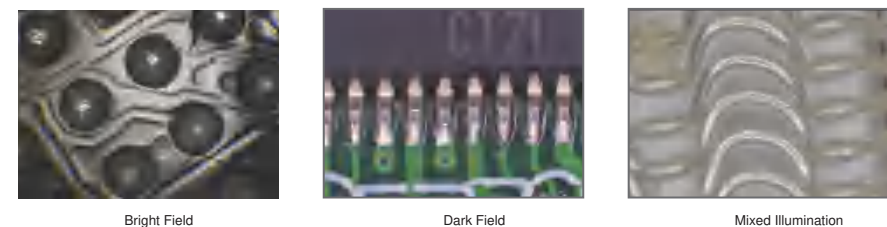
Fine Sharpening

Fine sharpening intelligently enhances faint edge features such as contours, burrs and gaps. Unlike ordinary sharpening, it strengthens microscopic detail while suppressing noise and producing no artifacts; it also optimizes slightly defocused images, helping identify tiny defects clearly, reducing focusing effort and yielding a clean, sharp view.



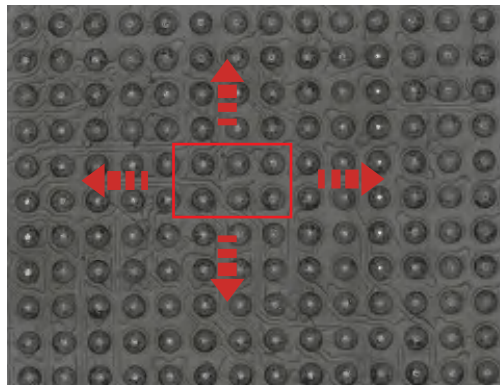
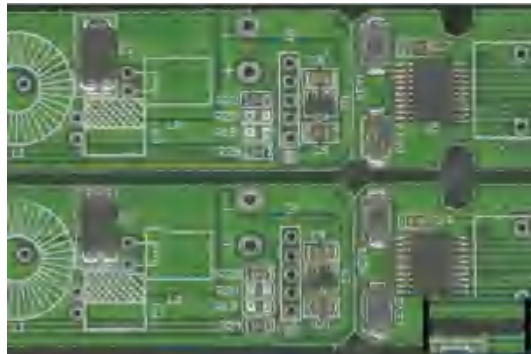
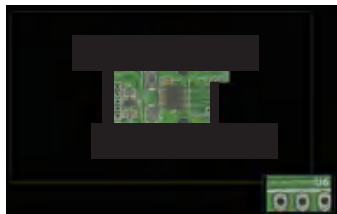
Bright / Dark Field / Mixed Illumination

Choose bright field, dark field or mixed illumination to meet inspection requirements.



2D Image Stitching

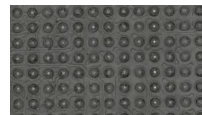
Press the stitching button to stitch images automatically. Large-area stitching with no image drift is completed in a short time, so the whole image serves as a top view. Stitching up to 3000*3000 pixels.



Normal Field of View



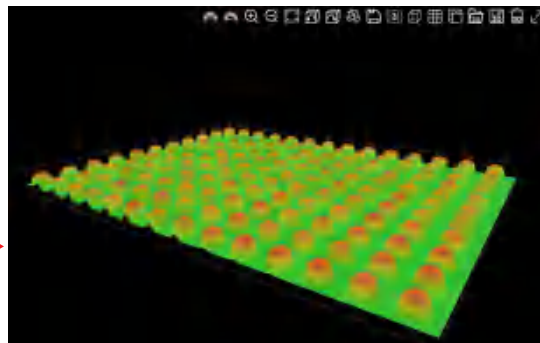
Move toward the area you want to expand



Max 30000*30000 pixels

3D Image Stitching

Measure while confirming the overall observed position. Image stitching captures high-magnification images while revealing the whole shape of the target.



Navigation

Click the target area in the overview image to move the stage there and synthesize a fully-focused view, simplifying observation.



At low magnification, frame the large field; at high magnification, simply click the navigation interface to move quickly to the target.



Auto Focus

One-click auto focus; no repeated focusing-wheel rotation is needed for uneven samples or workpiece changes.



Omnidirectional Observation System

A three-axis adjustment device for easy control of field of view, rotation and tilt. Even when tilted or rotated, the target stays within the field and remains centered.



Zero-Degree Locked State

Tilt Assist Structure

The left/right tilt of the arm features an assist structure for effortless operation, while preventing accidental drops that could damage the lens.

Simple Three-Axis Adjustment

Equipped with a three-axis adjustment device for easy control of field of view, rotation axis and tilt axis. Even when tilted or rotated, the target stays in view and centered.

Low-Center-of-Gravity Design

The main unit uses a low-center-of-gravity, high-rigidity mechanism for outstanding stability.

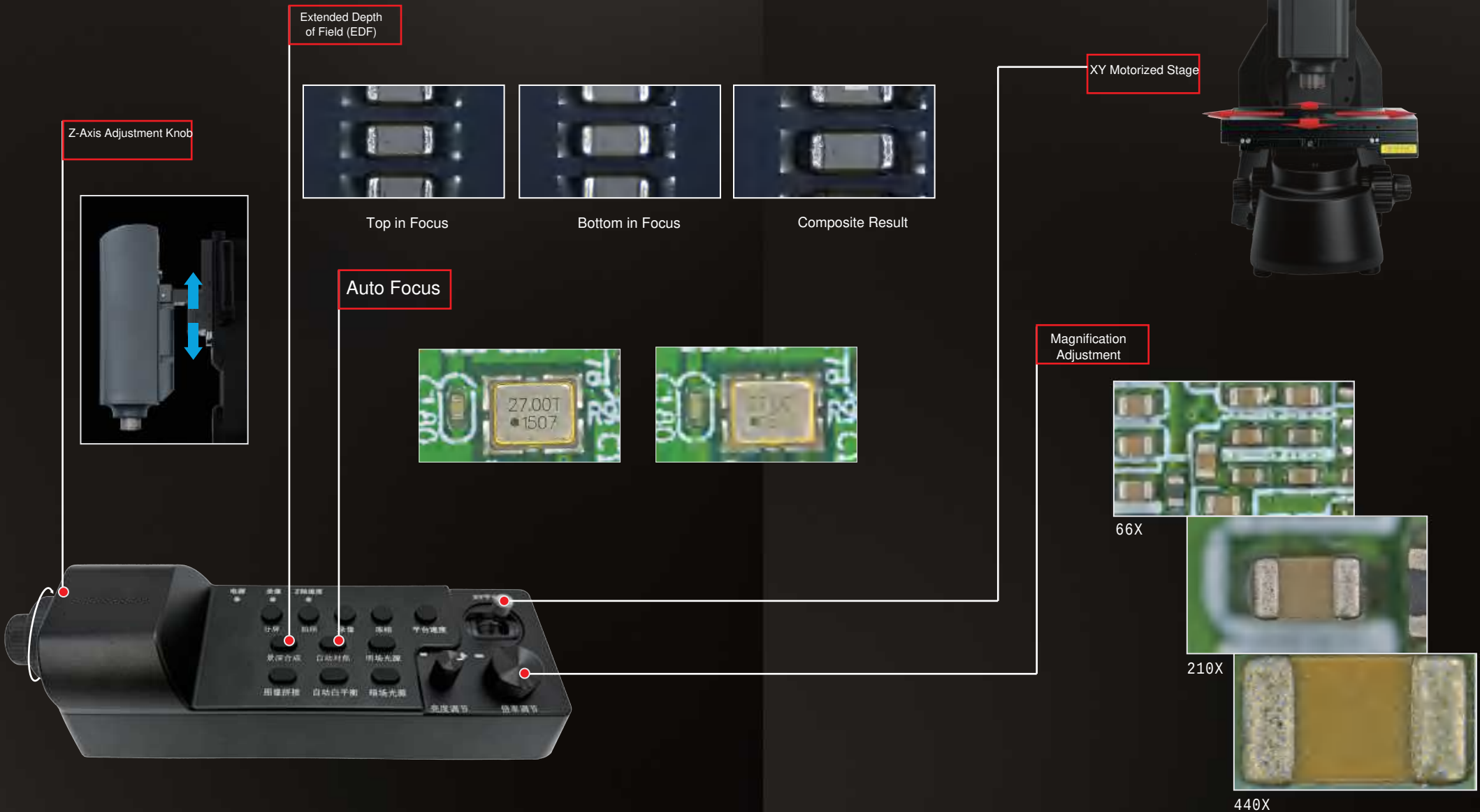
Zero-Degree Lock

A zero-degree lock mechanism locks the stage when it is level, improving observation reproducibility.

New Hand Controller Operation

The hand controller conveniently handles focusing, movement, photo capture, video recording, EDF, magnification adjustment and bright/dark field illumination, making measurement simple and efficient.

An all-new image processing system built on the experience of our previous generation. With fully independent intellectual property, everything from hardware design and low-level image processing algorithms to 3D image processing and structural design is developed in-house end to end, breaking technical barriers and demonstrating core R&D strength.

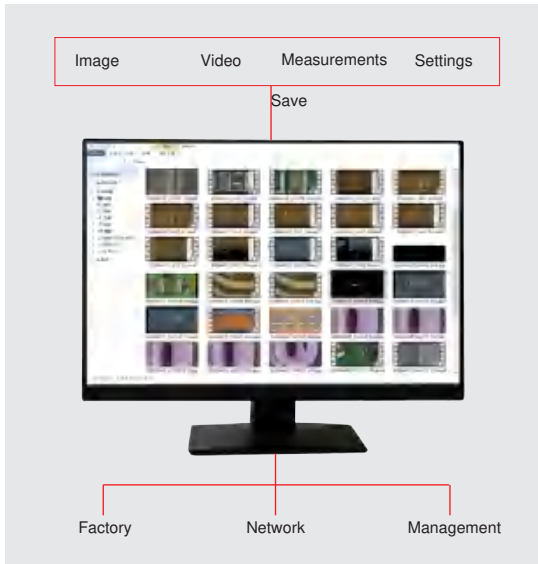


Save Data

One-click storage easily records the state observed on site. Beyond the file name, you can change names and add comments to quickly search for the desired image.

Report Generation

Export reports with one click. Templates can be built to company requirements; exported reports include custom information and measurement data.



Split-Screen Display

Switch to 4-, 6- or 9-split screens as needed, displaying multiple fields side by side. Place a good-part image in one pane as the reference and compare the test part in real time; differences such as color variation, missing material and scratches are judged without switching back and forth. Split screens can be saved full-screen, supporting a standard sample library and inspection records.



Re-shoot Settings

Just select an image from the album to reproduce its shooting settings; even with different operators and times, observation under the same conditions yields stable results.



Needle Tip Inspection



Chip Inspection



Cutter Inspection



Copper Wire Inspection



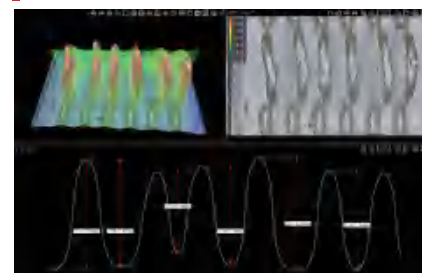
Textile Inspection



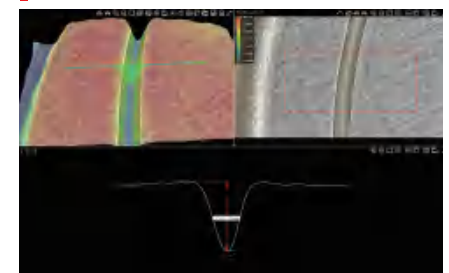
Biological Inspection



Bonding Wire Height Measurement



Hardware Groove Depth Measurement



Lens Parameters

Main Unit Model	Objective	Magnification
0660-35	1X	35-350X
0660-65	2X	65-560X
0750-180	5x	130-880X
	10x	270-1700X
	20x	535-4700X
	50x	880-8800X
0750-300	5X	180-850X
	10X	560-1400X
	20X	800-1600X
	50X	1200-3200X

Main Unit Specifications

Zoom Mode	Motorized Zoom	Stage Motion Control	Manual	Motorized (Hand Controller)
Sensor	1/1.8"	XY Travel	100*100mm	78*60mm
Pixel Size	2um*2um	XY Dimensions	220*170mm	220*220mm
Resolution	1920*1080@30	Load Capacity	1.5kg	
	2560*1440@30	Motorized Z Travel	500mm	
	3840*2160@30	Z Resolution	0.1um	
Bright Field Light Source	8WLED	Illumination	Bright / Dark Field / Mixed Illumination	
Dark Field Light Source	10WLED	Color Temperature	6500K	

Features

Full-Screen Display	Supported
Image Quality Enhancement	Supported
HDR	Supported
Fine Sharpening	Supported
2D/3D Stitching	Supported
Hand Controller	Supported
Split-Screen	4/6/9 Split
Tilt Angle	Supported
On-Screen Comparison	Supported
Extended Depth of Field	Supported
2D/3D Image Measurement	Supported
Navigation	Supported
Roughness Measurement	Supported
Cleanliness Measurement	Supported
Auto Focus	Supported