OLYMPUS®

Your Vision, Our Future

Opto-digital Microscope

DSX100

NEW

Discover another dimension

Opto-digital Micr

When You Need to See a New Dimension, Olympus Provides the Answer

The DSX Series of opto-digital microscopes sets a new standard for industrial microscopes. Born of Olympus leading-edge opto-digital technology, these instruments offer operating simplicity and a level of reliability unheard of amongst digital microscopes. The DSX100 offers a free-angle function that lets you examine your sample at an angle without touching the sample, and it has a precise 16x optical zoom range. With the DSX 100, any operator, regardless of experience, can get complete inspection and precise measurement every time.

Superb Operating Simplicity X **Absolute Performance Reliability**

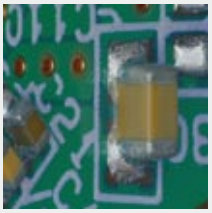
oscope DSX100

The DSX100 Offers a New World of Observation and Measurement

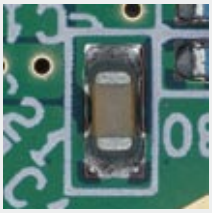
Four-Segment LED Ring Light and Free Angle Tilting Makes Scratches and Defects Easy to Identify

Page 06-07 08-09

The four-segment LED ring light lets you illuminate the sample from front, back, left, or right, and the free-angle function allows you to change the angle of observation without moving the sample. This means hard-to-see scratches or defects are now easily found.



Left 45 degree



Directly above

Right 45 degree

High-Definition Digital Clarity

Page 08-09

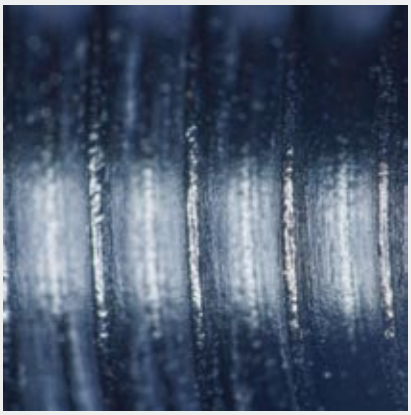
In addition to advanced optics, the use of High Dynamic Range (HDR) or Wide Dynamic Range (WiDER) clearly shows hard-to-see microscopic textures regardless of the samples reflectivity.

HDR image

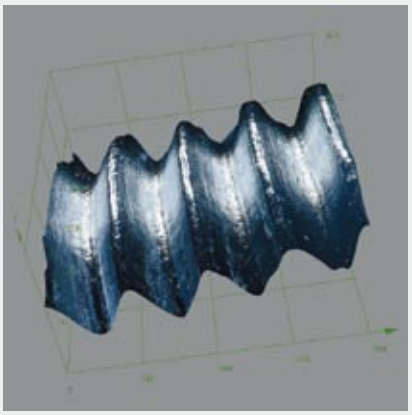
Replicates Your Sample's Surface

Page 10-11

Building a 3D image of the sample allows you to examine it from any angle.



A 2D image with everything in focus



3D images at a touch

Panoramic Images Takes You beyond the Field of View

Page 10-11

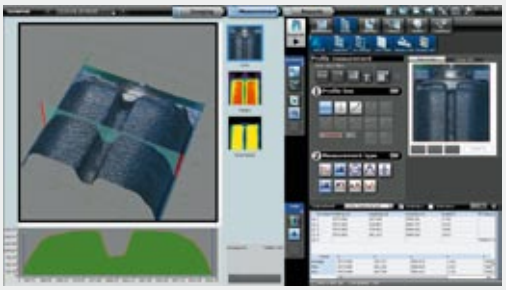
Panoramic images let you easily capture areas beyond the field of view, and are automatically assembled into a single image. 2D, EFI, and 3D images can all be synthesised.

Panorama image

Standard Features Enable a Huge Variety of Measurements, So All Your Measurement Objectives Are Met

Page 12-13

Fundamental industrial microscope measurements are standard features of the DSX software, so it is easy to quantify your results. In addition to the standard methods of surface measurement, optional software is available for 3D measurement, caliper measurement, and particle analysis.



Profile measurement

Easy-to-Use and Customisable Report Function

Page 11

One click sets the report function in motion to record and create a report of both the image and measurement results. Reports can be customised for your application to greatly improve efficiency.

A click can generate a report

Report output

Surface mount device

Advanced Mode

Provides the flexibility and power advanced users need while retaining an intuitive and simple to use interface.

Tutorial Mode

Even first-time users can follow the suggestions of the system and it will create the image that meets their needs.

Operator Mode

This customisable mode is ideal for routine work by eliminating all non-essential menus.

Three user-selectable modes — Choose your mode that best fits your imaging and measurement needs

Operating Simplicity that Guides Operators to Optimum Output, Regardless of Their Experience

The DSX100 provides a new way to see. No need to look through eyepieces, everything you need is on the screen. Operate the scope with a touch panel or mouse. What's more, virtually anyone of any experience level can use this interface to achieve their results in seconds. The system guides the operator from inspection to measurement to analysis to final report. Short, simple steps. Quick results.

Three User Modes Meet Operator Experience Levels and Job Demands

Select Tutorial, Operator or Advanced Mode to best match the experience of the operator and the job at hand. Operator Mode can be customised to speed up routine work. The operator's ID and password open the application, and automatically sets the system to the operator's preferred configuration, observation, analysis, and measurement settings.

New Touch Screen User Interface

In the past, an operator had to make complicated adjustments on their microscope to achieve their desired image; with DSX100, it's simple. Once the sample is in place, everything is controlled by touch screen or computer mouse – focus, zoom, brightness and light position. All controls are direct and easily performed. In addition, auto-focus and auto-gain ensure illumination and focus are correct.

Optical Zoom Provides Both Close-up and Wide-angle Imaging

Changes in magnification can be made as needed, even by small amounts. The DSX100 lens system gives you 16x and digital zoom for a maximum of 30x.

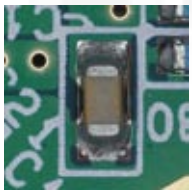
Zoom in on your sample

The Free Angle Function Provides an Angled View without Touching the Sample

With conventional microscopes you have to move the sample in order to observe it from an angle, and often the microscope needs to be refocused. With the DSX100, merely tilt the head to change the viewing angle. The sturdy frame is a low centre of gravity, provides extra stability.

The DSX100 zoom head — Swings smoothly and stably from side to side for angled observation

Left 45 degree



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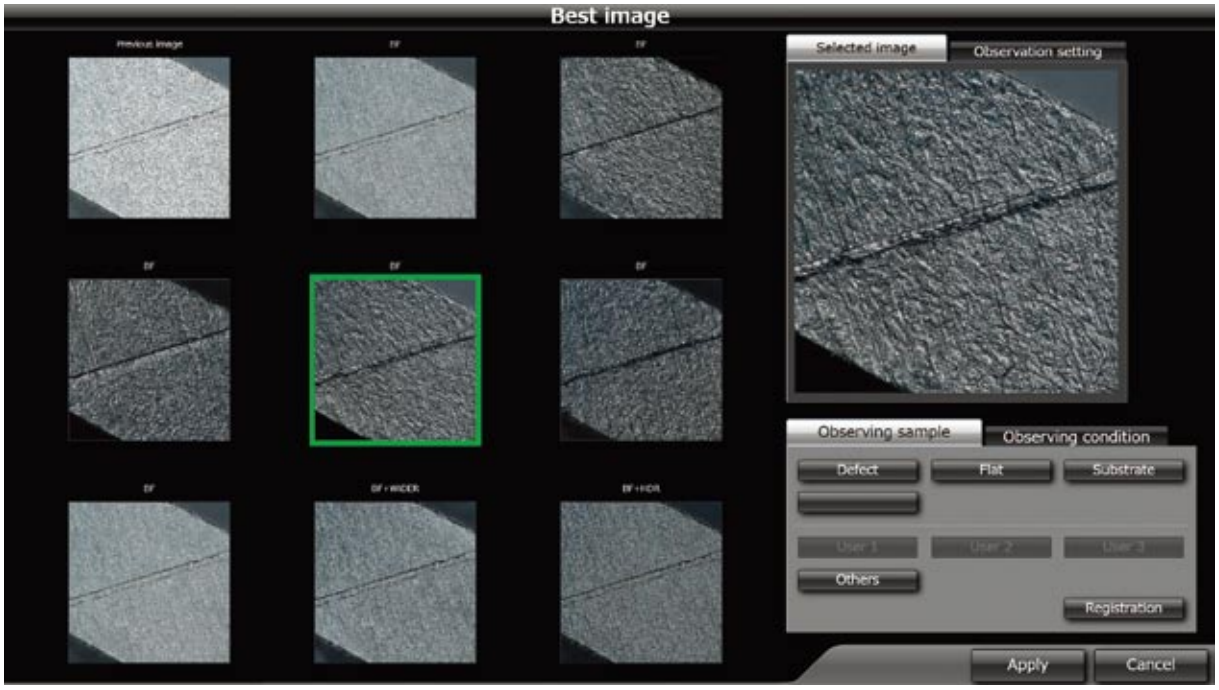
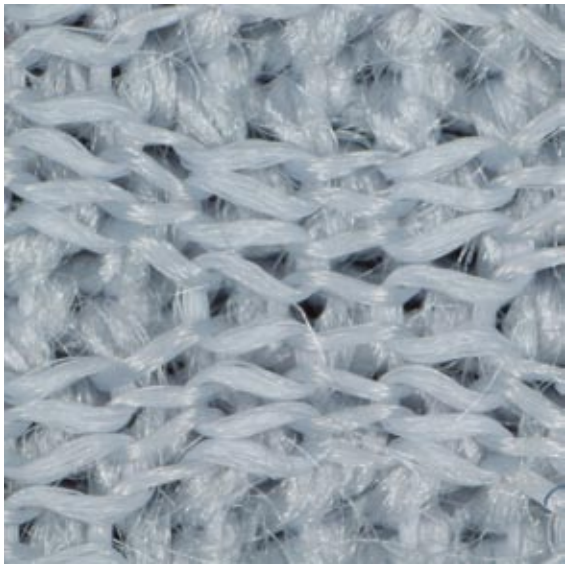
Right 45 degree



Plastic surface

Best image — Just choose the image you want from the previews on the screen



Cloth

High Dynamic Range (HDR) — Overcome inhalation enabling high-definition inspection

Quickly Guided to the Best Possible Output

Change observation methods or image processing with a single touch. Choose the image you want from the previews shown on the touch screen. A few simple steps let you perform the best possible observation very quickly.

Best Image Function Ensures Optimum Performance

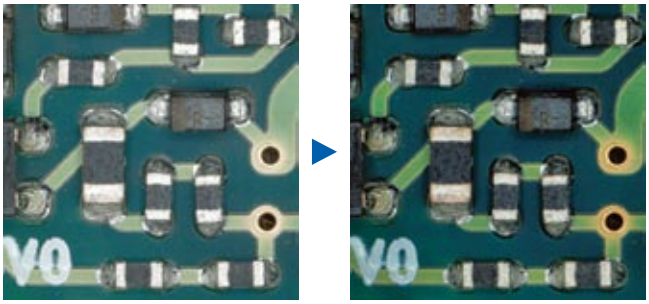
Now you can operate your microscope just by choosing the image that fits your need. Ensuring the best possible image, whether looking for defects, uneven surfaces, or foreign objects. Anyone can operate the system, beginner or expert, with just a touch.

HDR Gives High-Definition Images that Go beyond the Human Eye

Samples may appear differently depending on the quality of material, surface conditions, or illumination methods. The High Dynamic Range (HDR) function of the DSX100 combines several images taken at different exposures to accurately correct brightness differences on the sample surface. HDR provides high-fidelity images that show not only textures but also flaws and defects that were undetectable before. Glare can also be reduced for more comfortable observation.

WiDER Provides Easy Inspection of Samples with High Reflectance Difference

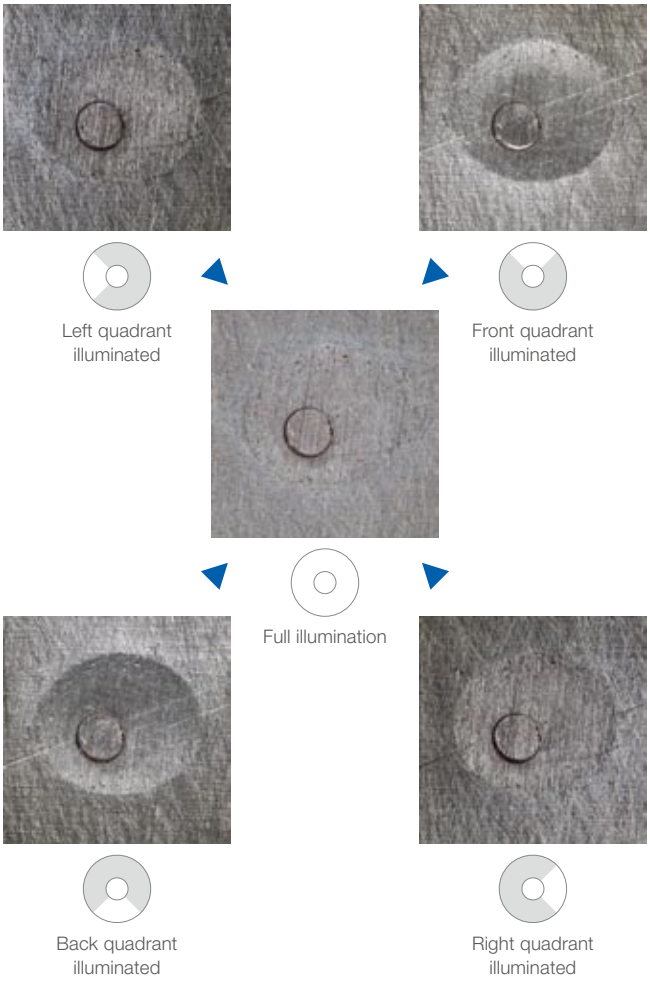
If the non-reflective area cannot be seen, merely increasing the illumination power is often not enough, because glare can occur. Olympus intelligent image processing technology eliminates these problems with WiDER, a proprietary system that works effectively with live images, is ready to go at the click of a button, and takes care of the contrast problems in real time. No blackouts. No glare.

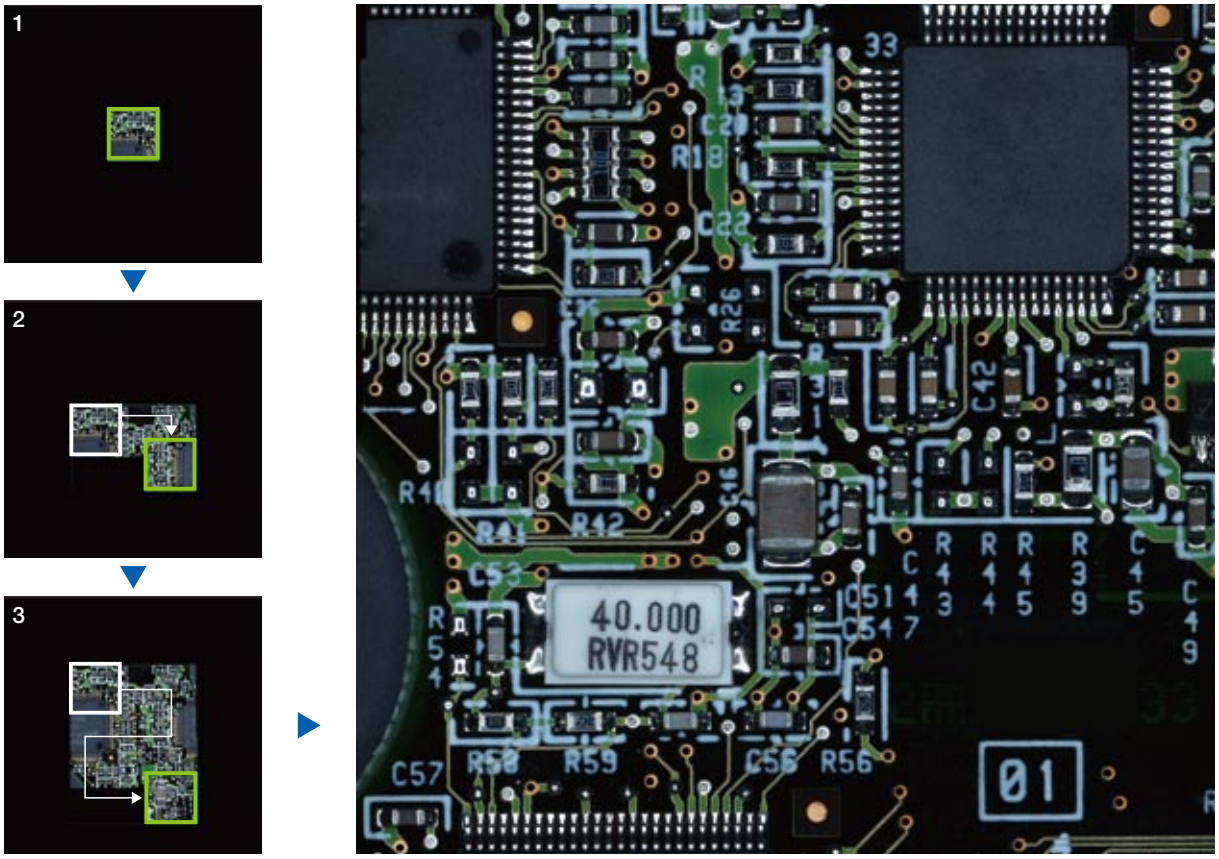


When high contrast problems occur, a click lets you see everything in real time

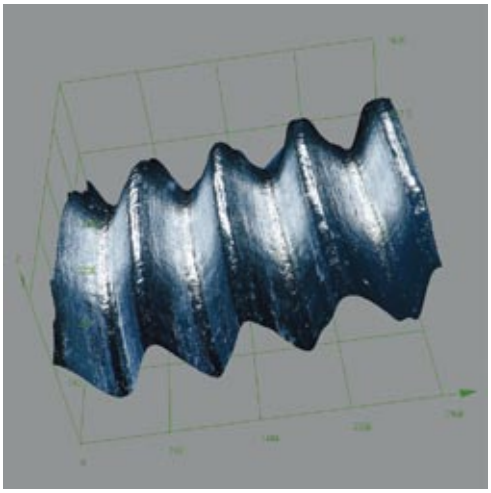
Four-Segment LED Ring Light Makes Scratches and Defects Easy to See

The DSX uses Long-life energy-saving LEDs for illumination. And because the colour temperature is stable, there's no need to adjust white balance. The ring light is divided into quadrants that allow flexible control of illumination, making scratches and defects easier to find.





Live Panorama — A large field can be easily stitched



Thread of screw

3D image — A click of a button allows you to view your sample in 3D

Simple Operation Lets You See What You Couldn't See Before

The DSX100 requires no extensive knowledge or special skills to show you exactly what you want to see. By calling on leading-edge electronic technology, you can now see what was unclear or impossible before.

Panoramic Images Include Areas beyond the Field of View

On the DSX100 there is no such thing as 'outside the field of view'. As the stage moves, the system automatically stitches images into a single large field of view, in real time. Where conventional microscopes reduce field area with increases in magnification, the Panoramic View maintains the original field while giving close-up clarity – with 2D, extended focus, or 3D.

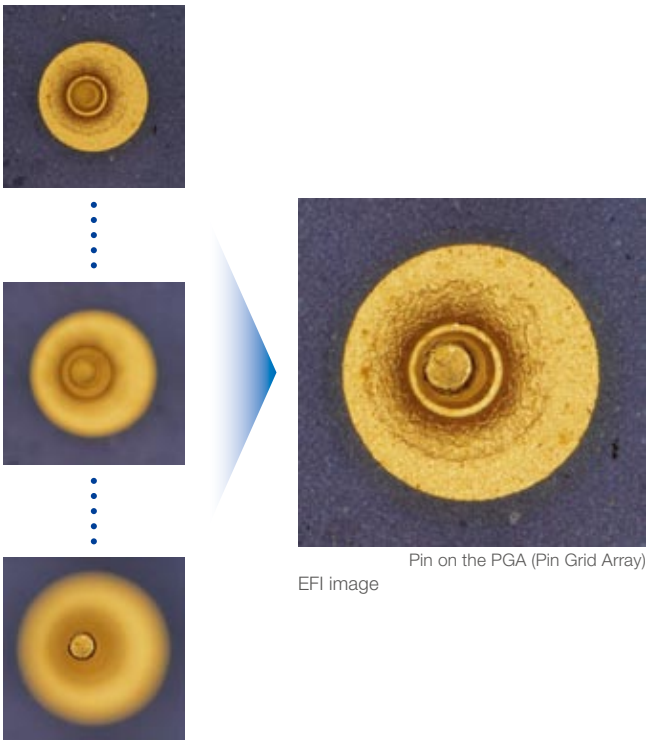
3D Imaging Allows You to View Your Sample as It Actuallly Is*

The DSX100 can easily show your sample in three dimensions, and then you can examine it from any angle.

*A 3.6x objective lens is required for 3D imaging

Extended Focal Range Shows Everything

The DSX100 Extended Focal Image (EFI) maintains focus across the entire sample surface area. This makes uneven surfaces easy to inspect.

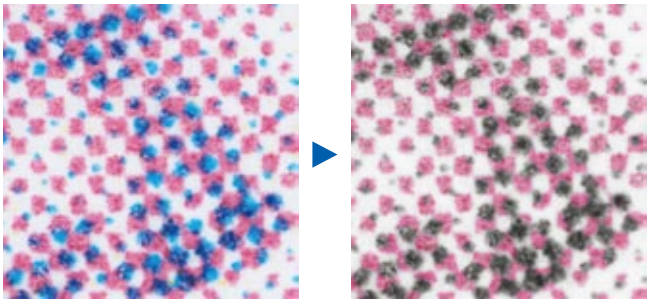


Pin on the PGA (Pin Grid Array)

EFI image

Colour Enhancement Feature Shows You Only What You Want to See

Colour enhancement allows you to isolate a particular colour while making the rest of the image monochrome. Ideal for focusing on a particular defect.

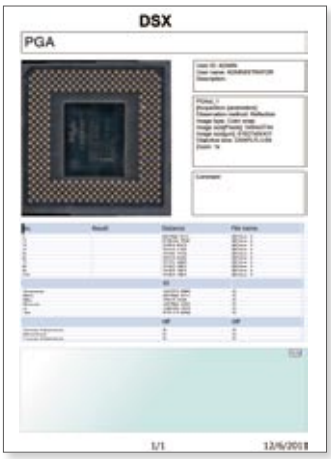


Inspection is easier when you can highlight possible defects or contamination for inspection

Customisable Report Function Makes Generating Reports Simple and Easy

With DSX100, you can perform an observation or measurement, and the system will automatically generate your reports.

A click can generate a report



Report output

Connector

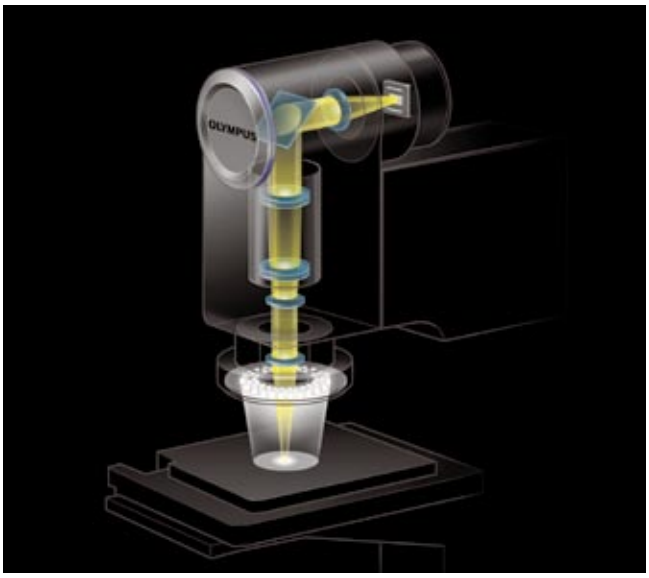
Intuitive and Simple User Interface — Complete with traditional Olympus reliability

Olympus Long Experience Gives DSX Microscopes the Ability to See What Digital Microscopes Cannot

Olympus guarantees the reliability of DSX Microscopes because they are born of Olympus optical and digital technology. Glare is minimised and colour reproduction is real. Make sure of that, Olympus uses the perfect combination of CCD chip and graphic board. The sample is reproduced with such accuracy it's like a new dimension.

High-Quality Optics Let You See into Another Dimension

The DSX Series is the cumulation of Olympus long history of superior engineering and design capabilities as well as proven manufacturing quality. In the clear images produced by the DSX100 opto-digital microscope, you'll find neither flare nor distortion, unheard of in other digital microscopes.



The optical technology and dedicated lenses

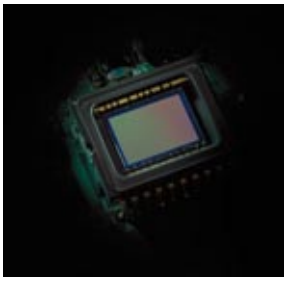
Dedicated DSX100 Field Lenses Make High-Grade Image Dissection a Simple Matter

The objective lenses were designed and engineered specifically for the DSX100 scope—Olympus offers two versions a 1x and a 3.6x. Illumination unevenness is virtually eliminated by high level aberration correction. Each lens has embedded LEDs that are designed to achieve optimal illumination from any angle.

High Resolution 18MP Images Reproduced with a High-Performance CCD*

Olympus High Performance CCD is the engine that shows exactly what the our high-quality optics reveals. The image shift function ensures high fidelity with fine detail processing, so the clarity extends from corner to corner.

*4800x3600 pixels, 3CCD mode conversion triples the pixel count



High performance CCD

Auto-Calibration Eliminates User Errors

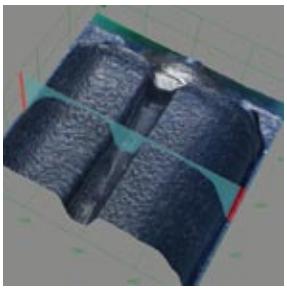
Proper calibration is crucial to precise measurements, and with the Olympus DSX100, any operator can calibrate simply and accurately. This eliminates differences that naturally occur when different operators calibrate, and increases the reliability of measurements. In addition, the system's calibration report shows who did the calibration and when.

*Calibration sample is required

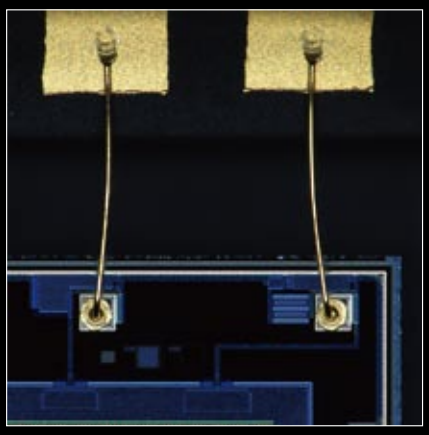
Choice of 2D and 3D Measuring

The DSX100 microscope comes equipped with both 2D and 3D imaging capabilities. That means you can measure along the X, Y axis, or along X, Y, and Z axis. Observe, inspect, or measure from any angle.

*3D imaging function is an option
**A 3.6 objective lens is required for 3D imaging

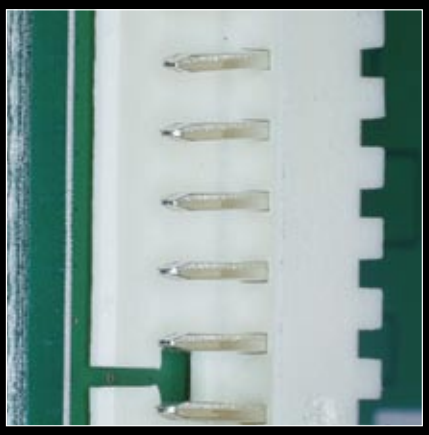


Today, the DSX100 Provides a Combination of Simple Operation and High-Resolution Images that Has Never Been Achieved Before. Opto-digital Microscopes Improve Examination Efficiency and Quality for any Industrial Application



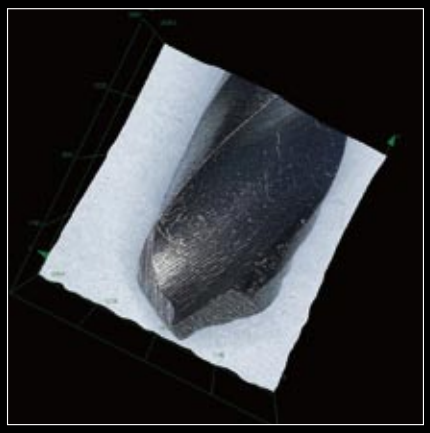
Bonding wire
(Ring illumination)

Cloth
(Ring illumination)



Connector
(Ring illumination)

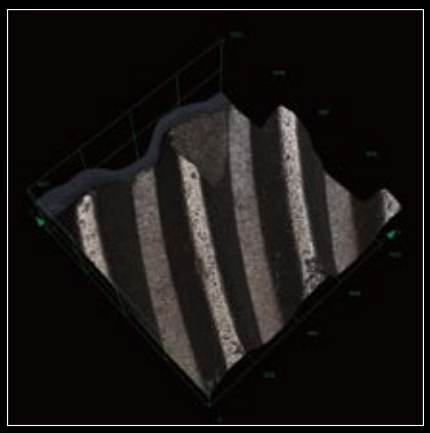
LED chip
(Ring illumination + HDR)



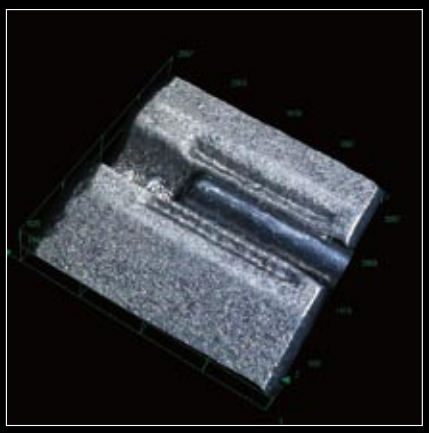
Tool
(Ring illumination + HDR)

Bolt
(Ring illumination + HDR)

PGA tilt observation
(Ring illumination)

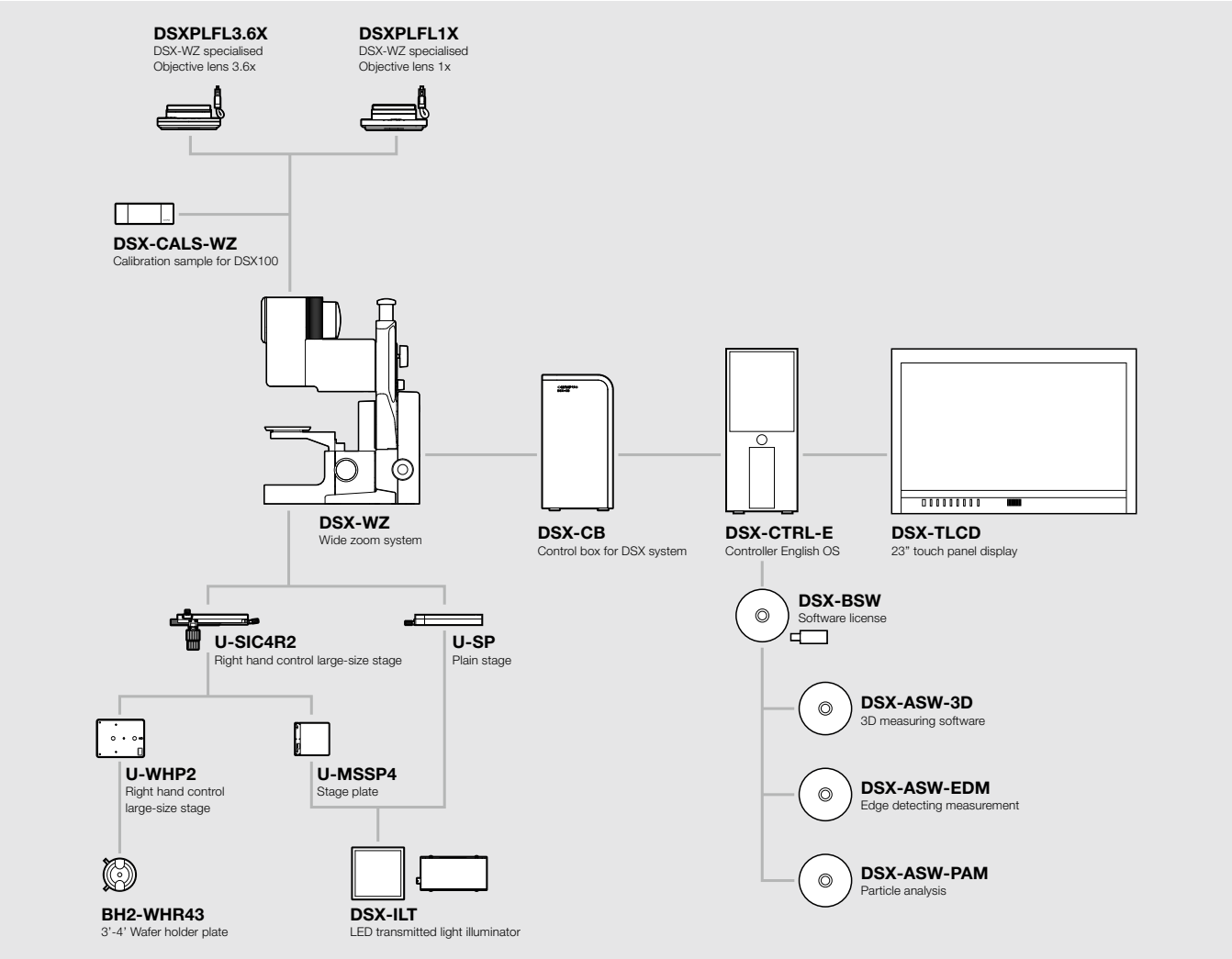


Gear
(3D)

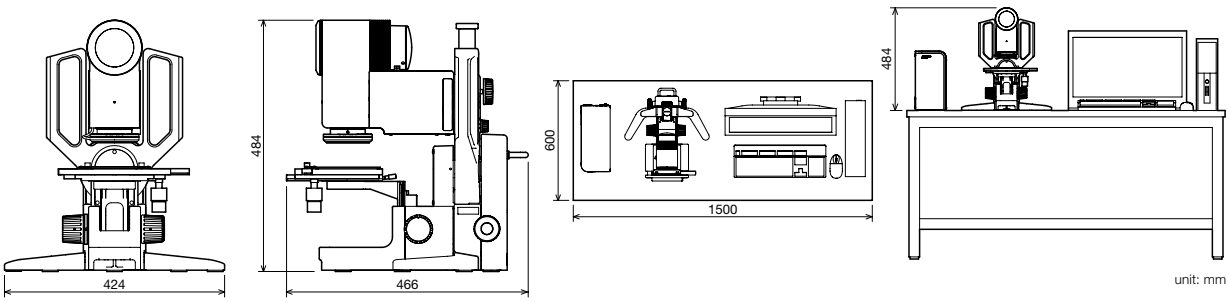


Micro motor
(3D)

DSX100 System diagram



DSX100 Dimensions



DSX Series

DSX500

High-resolution
Upright scope

DSX500i

High-resolution
Inverted scope

DSX100 Specifications

Main frame	Zoom ratio		16x optical zoom (0.125x-2.0x), 30x with digital zoom
	Mountable objective lens	DSX Dedicated objective lens	DSXPLFL1X, DSXPLFL3.6X
	Illumination (Objective lens)		LED ring light illumination mounted on the objective lens
	Camera	Image sensor	1/1.8 inch, 2.01 megapixels, Colour CCD (Total pixels : 2.10 megapixels) Total pixels : 1688(H) x 1248(V) Available pixels : 1628(H) x 1236(V) Effective pixels : 1600(H) x 1200(V)
		Cooling method	Peltier cooling
		Scan mode	Progressive scan
		Frame rate	15fps / 27 fps with binning mode
		Image size	Normal : 1194×1194(1:1) / 1592×1194(4:3) Fine : 1194×1194(1:1) / 1592×1194(4:3) Super fine : 3594×3594(1:1) / 4792×3594(4:3)
		Sensitivity	ISO100 / 200 / 400 / 800 / 1600 equivalent
	Fine focusing (Motorised)	Stroke	30 mm
		Resolution	0.4 µm
Frame	Coarse focusing (Manual)	Stroke	50 mm
	Maximum sample height	Standard	80 mm
		To ensure U-centric operation in tilted operation	50 mm
	Tilt mechanism	Type	Manual, lock/release handle
		Tilt angle	Left/Right 45°
Stage	U-SIC4R (Manual)	Stroke	100 × 100 mm
		Load capacity	1 kg
LCD Monitor		Size	23" with Touch panel and Full HD colour LCD monitor
		Resolution	1920(H) x 1080(V)
Weight			Approx. 36.5 kg (Main frame, Manual stage, LCD monitor, Control box, Controller)
Input rating			100-120V/220-240V, 185VA, 50/60Hz

DSX100 Objective lens

Series	Model	Perforcal distance	N.A.	W.D. (mm)	Actual F.O.V. (µm)*1	Total Magnification*2
DSX dedicated objective lens	DSXPLFL1X	167 mm	0.025	138	46,621-2,539	7x-107x
	DSXPLFL3.6X	79 mm	0.09	50	11,284-705	24x-386x

*1 At aspect ratio 1:1 (with factory default value) *2 At aspect ratio 1:1

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- **OLYMPUS CORPORATION is ISO14001 certified.**
- **OLYMPUS CORPORATION is FM553994/ISO9001 certified.**
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- All other company and product names are registered trademarks and/or trademarks of their respective owners.
- Images on the PC monitors are simulated.
- Specifications and appearances are subject to change without any notice or obligation on the part of the manufacturer.

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