

# OLYMPUS®

Your Vision, Our Future

Polarizing Microscope

## CX31-P

Quality, Performance and Versatility for  
Multiple Applications, from Education to Research

**UIS2**  
World-leading optics



# Polarizing Microscope CX31-P: Excellent Image Clarity and Sophisticated Functions for High Throughput in Routine Inspections.

The CX31-P is a high-quality polarizing microscope that's ideal for training, with the wide-ranging functions and high durability required in every field of research.

Its excellent optical performance is matched with the versatility to meet the demands of many different kinds of applications, from double-refraction examination of the structure and characteristics of transparent specimens to complex analyses of rocks, fibers, macromolecules and new materials.

## **Central control, with compact intermediate attachment U-PA for orthoscopic and conoscopic observation**

Every kind of operation is made easier by this microscope's central control, including the detachment/attachment of a Bertrand lens to switch between orthoscopic and conoscopic observations, focusing of conoscopic images, and rotation or detachment/attachment of analyzer and clump at any angle.

## **Compatibility with several compensators to meet various different needs**

The same slot is used for attachment of a tint plate, a 1/4 wavelength plate and compensators for measuring retardation.

## **Special polarizing objectives with reduced distortion**

The CX31-P accommodates high-performance polarizing observation objectives including the PLN4xP, ACHN-P series and UPLFLN-P series. As well as reduced optical distortion, these objectives feature improved polarizing performance to obtain sharp, high contrast images.

## **Precision adapter maintaining accurate center of field of view**

U-CTAD centering adapters for objectives are provided for precise polarized observations and easy magnification change.

## **Superior frame rigidity prevents blurred images**

Frame rigidity is crucially important, maintained by optimizing the alignment of systems inside the microscope body, including the focusing mechanism and stage supporting system. As well as stable and steady optical performance, the CX31-P features a rotatable stage with vernier for outstanding durability.

## **Binocular tube (U-BI30P) that prevents crossline slant**

Binocular tube prevents the crossline slant that can be caused by adjusting the interpupillary distance. In addition, the direction of polarizing light oscillation can be precisely aligned.

## **Ideal for biological applications, including urate crystals observation**

Urate crystals observation can be performed simply and easily by attaching a U-GAN analyzer via the polarizing intermediate attachment U-KPA. This combination is also effective in making inspections for amyloid and urinary resident or observing living cells in muscular tissue.

## **Easy attachment of mechanical stage**

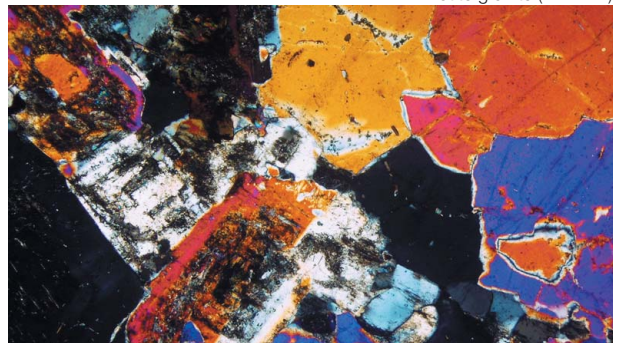
U-FMP mechanical stage can be attached, making it easy to move specimens into the desired position.

## **Trinocular observation tubes for integrating micro-imaging system**

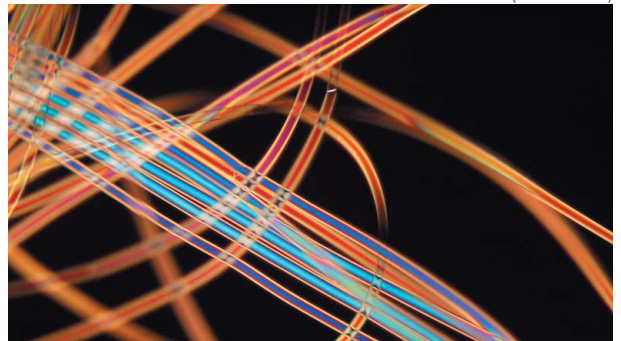
Trinocular observation tubes to attach Olympus digital cameras are provided to allow micro-imaging.



Biotite granite (PLN4xP)



Tencel (ACHN20xP)



ACHN-P series objective+U-CTAD centering adapters



U-FMP mechanical stage



Intermediate units



Compensators



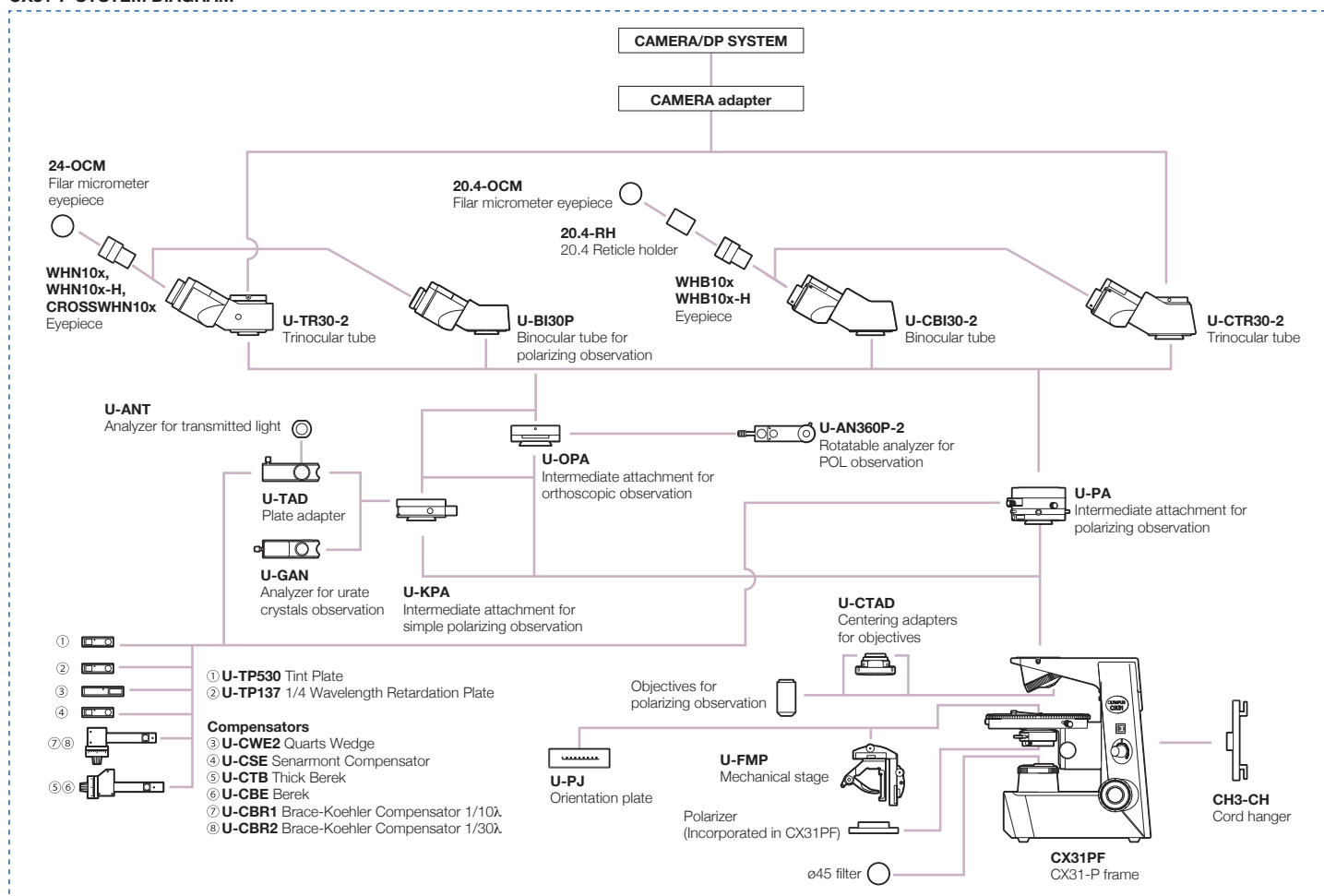
Plates

Plate	Applications
① U-TP530 tint plate	Can effect easily visible color changes even with faintly tinted samples.
② U-TP137 1/4 wavelength retardation plate	Used to change linear polarized light to circular polarized light and vice versa.

Measuring range of compensators

Compensators	Measurement range	Applications
③ U-CWE2 quartz wedge	550-2,200 nm (4λ)	Approximate measurement of retardation level (crystal, macromolecules, etc.)
④ U-CSE Senarmont	0-546 nm (1λ)	Measurement of retardation level (crystals, living organisms, etc.), Enhancement of image contrast (living organisms, etc.)
⑤ U-CTB Thick Berek	0-11,000 nm (20λ)	Measurement of high retardation level (3λ<R* <20λ), (crystals, macromolecules, fibers, light elasticity strain, etc.) *R=retardation level
⑥ U-CBE Berek	0-1,640 nm (3λ)	Measurement of retardation level (R* <3λ), (crystals, macro-molecules, fibers, living organisms, etc.) *R=retardation level
⑦ U-CBR1 Brace-Koehler 1/10λ	0-55 nm (1/10λ)	Measurement of low retardation level (living organisms, etc.)
⑧ U-CBR2 Brace-Koehler 1/30λ	0-20 nm (1/30λ)	Enhancement of image contrast (crystal, macromolecules, etc.)

CX31-P SYSTEM DIAGRAM



## CX31-P specifications

Item	Specifications	
Optics	UIS2 optical system (infinity-corrected)	
	Objective	Objectives for polarized light observation PLN4xP, ACHN-P series, UPLFLN-P series
	Eyepiece	WHN10x, WHN10x-H, CROSSWHN10x Field Number: 22
Observation tube	Binocular	WHB10x, WHB10x-H Field Number: 20
		U-BI30P Field Number: 22
	Trinocular	U-CBI30-2 Field Number: 20
		U-TR30-2 Field Number: 22, observation optical path binocular:straight tube= 100:0/20:80/0:100 Field Number: 20, observation optical path fixed binocular:straight tube= 50:50
Conoscopic Intermediate tube (U-PA)	Bertrand lens	Incorporated, detachable, focusable
	Changeover between orthoscopic/conoscopic observation	Engage or disengage of Bertrand lens Position: ● IN Position: ○ OUT
	Analyzer	Incorporated, detachable, 180° rotatable, lockable in any position 2° increments, minimum retardation resolution 6', using vernier scale
	Slot for compensators	Tint plate (U-TP530), 1/4 wavelength retardation plate (U-TP137) and various compensators attachable
Microscope Body	Illuminator	6 V 30 W halogen lamp, pre-centered, pre-focused, with field diaphragm Power source incorporated, 100-120 V/220-240 V 0.85/0.45 A 50/60 Hz
	Condenser	Strain-free polarizing condenser NA 0.9 (with oil immersion: 1.25), Aperture iris diaphragm incorporated Polarizer 360° rotatable, detachable
	Stage	Polarizing rotatable stage with centering function 360° rotatable, lockable in any position 360° graduated in 1° increments (minimum retardation resolution 6', using vernier scale)
	Revolving Nosepiece	Quadruple, fixed arm, inclined
	Focusing	Rack & pinion Full stroke range: 25 mm, Minimum graduation in fine movement: 2.5 μm Upper limit stop mechanism in coarse movement Tension adjustment on coarse focus adjustment knob

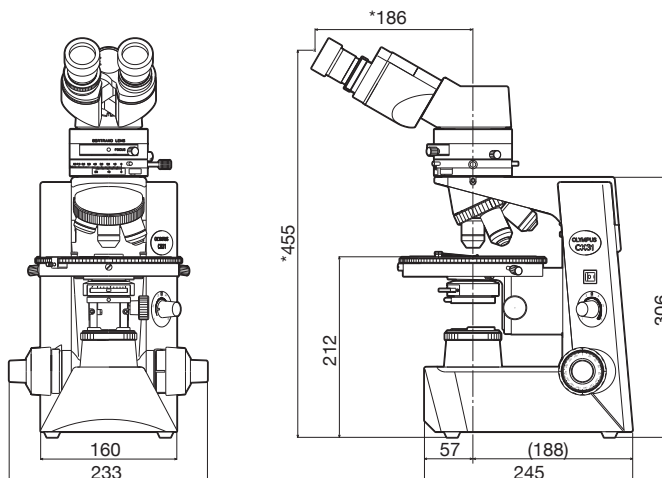
## UIS2 objectives\* specifications

Model	Numerical Aperture	Working Distance
PLN 4xP	0.1	18.5 mm
ACHN 10xP	0.25	6.0 mm
ACHN 20xP	0.40	3.0 mm
ACHN 40xP	0.65	0.45 mm
ACHN 100xOP	1.25	0.13 mm
UPLFLN 4xP	0.13	17.0 mm
UPLFLN 10xP	0.3	10.0 mm
UPLFLN 20xP	0.5	2.1 mm
UPLFLN 40xP	0.75	0.51 mm
UPLFLN 100xOP	1.3	0.2 mm

\* All UIS2 objectives and WHN eyepieces: lead-free eco-glass

## CX31-P dimensions

(Unit: mm)



Configuration weight: 8.7 kg

\*The length marked with an asterisk (\*) may vary according to interpupillary distance. Distance for figure shown is 62 mm.

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- OLYMPUS CORPORATION is ISO9001 certified.
- Illumination devices for microscope have suggested lifetimes. Periodic inspections are required. Please visit our website for details.

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