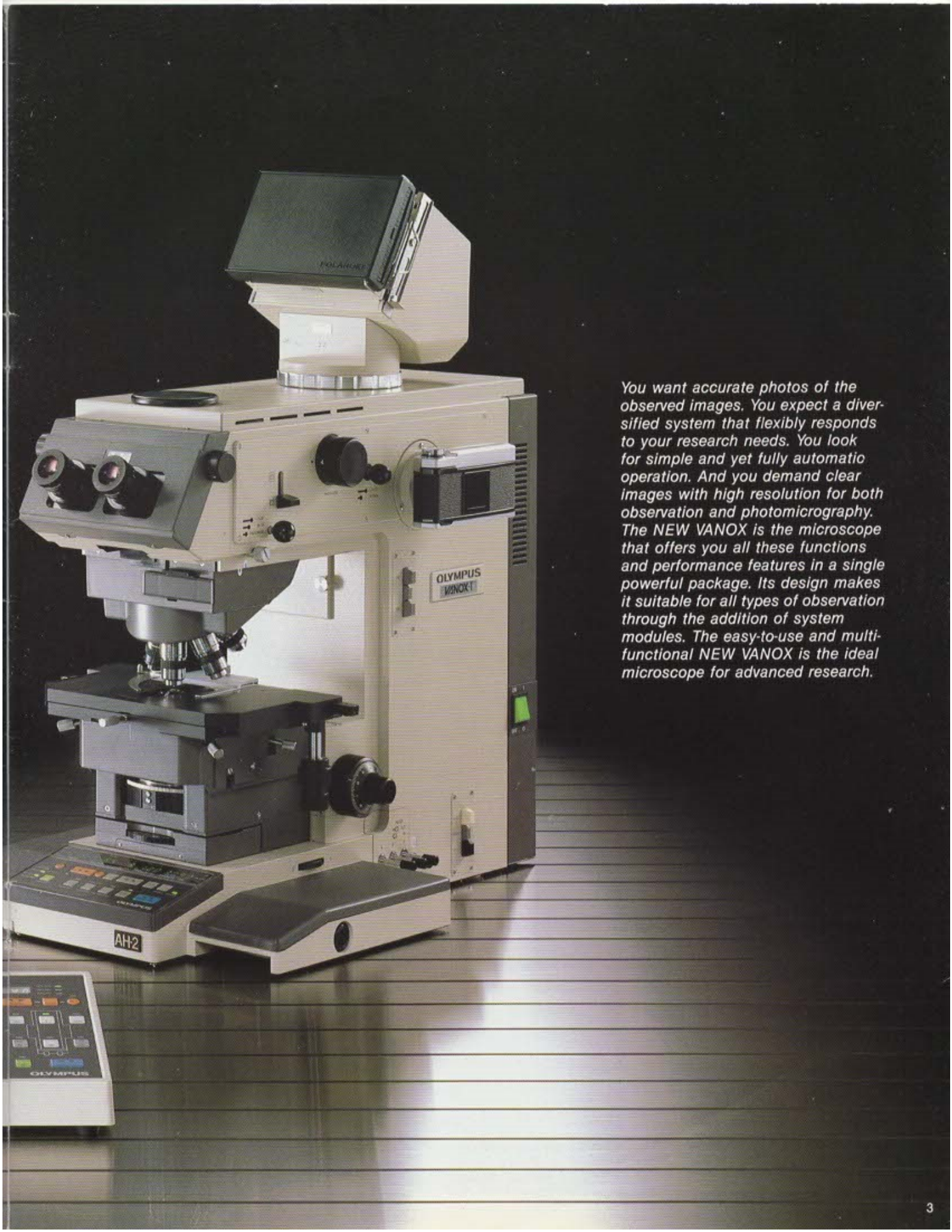
OLYMPUS®

AHBS/AHBT

Research Photomicrographic Microscope System

NEW VANOX

The NEW VANOX is a Top Class Photomicroscope with Exceptional Ease of Operation and a Wide Range of Applications.



You want accurate photos of the observed images. You expect a diversified system that flexibly responds to your research needs. You look for simple and yet fully automatic operation. And you demand clear images with high resolution for both observation and photomicrography. The NEW VANOX is the microscope that offers you all these functions and performance features in a single powerful package. Its design makes it suitable for all types of observation through the addition of system modules. The easy-to-use and multifunctional NEW VANOX is the ideal microscope for advanced research.

The NEW VANOX Sets the Standard for a New Generation of Research Microscopes

The NEW VANOX, incorporating all necessary photographic functions, is available in two types, models S and T. A truly innovative microscope that offers an unprecedented variety of functions.

Special Features of the NEW VANOX S/T

Super widefield of view

LB Series objectives are designed for super widefield observation with an eyepiece field number up to 26.5.

Full Köhler illumination

Full Köhler illumination covers the whole range from ultra-low to high magnification objectives.

Attachment for three cameras

Two 35mm cameras and one large-format camera can be mounted simultaneously. In addition, a TV camera can also be attached.

Four built-in photographic eyepieces

The microscope features four built-in photographic eyepieces 2.5X, 3.3X, 4X, and 5X, mounted on a turret, permitting convenient change of photo magnification.

Motorized revolving nosepiece

At the touch of a button, the motorized sextuple revolving nosepiece changes objectives.

Uniform color temperature

The light intensity control system based on ND filter conversion maintains the same color temperature regardless of light intensity.

Filter slider

Up to three contrast filters or light-balancing filters can be inserted into the microscope body if needed.

Rotatable square mechanical stage

The rotatable mechanical stage allows alignment of the specimen details in reference to the photographic format.

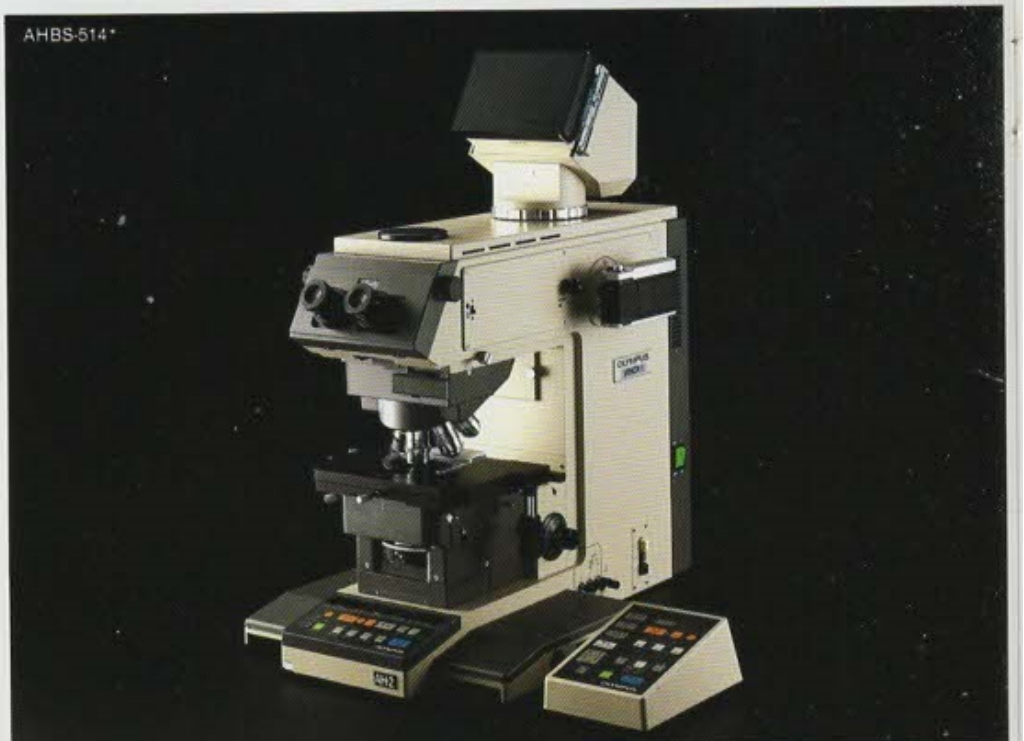
VANOX-S

Illumination systems such as condenser, field diaphragm, aperture diaphragm, and light intensity are all adjusted automatically, linked to the change-over of the objective. Automatic focusing for objective magnification from 1X to 10X is also possible.

VANOX-T

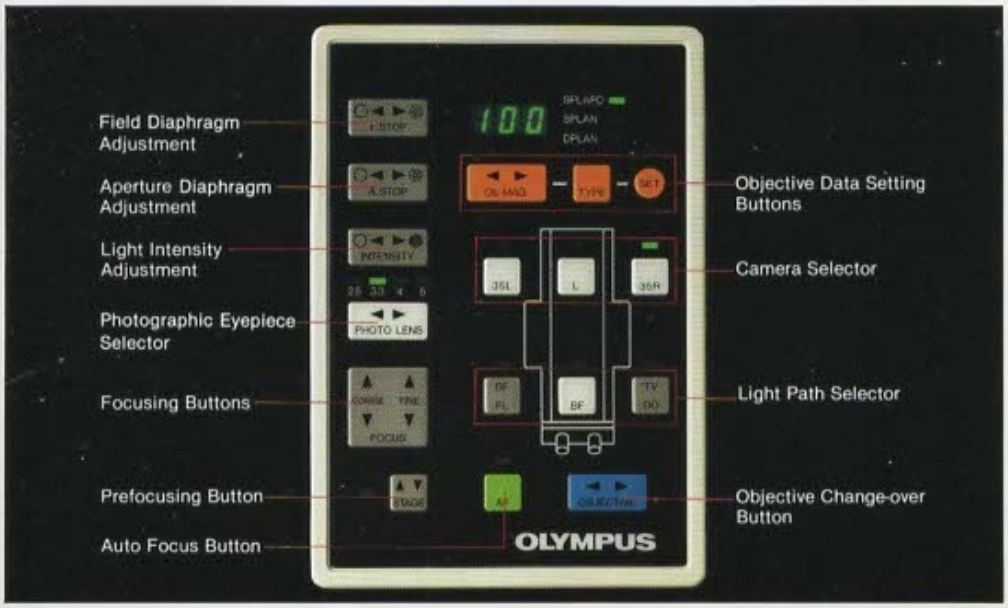
With the exception of the automatic adjustment for the illumination system and the automatic focusing, the Model T offers the same optical performance as the VANOX-S. It also features a built-in focusing magnifier for photomicrography at low magnifications.

AHBS-514*



AHBT-513*

Dimensions: 376(W)×600(D)×488(H)mm Weight: Approx. 46kg • Large format photographic equipment is optional.



The VANOX-S is Fully Automatic from Observation to Photography

All procedures from observation to photography can be performed by simple push-button operation at the control panel. Observation requires no more than selecting the objective and pressing the AF button, while pictures can be taken merely by selecting the camera format and the photographic eyepiece. The handy centralized control panel has made all complicated procedures a thing of the past.

VANOX-S Standard Outfits

Module		AHBS	
		513	514
Microscope Stand	AHBS-F	○	○
Power Cord	UYCP	○	○
Sextuple Revolving Nosepiece	AH2-6RE	○	○
Mechanical Stage	AH2-SVR	○	○
Halogen Bulb	JC12V100WHAL-L (2pcs.)	○	○
35mm Camera Back	PM-C35AD-4 (2pcs.)	○	○
Filter Set (LBT and IF550)	PM-FIL-6	○	○
Lens Cleaning Kit	CLEANING KIT	○	○
S Plan Achromat Objective Set	SPLFL2X, SPL4X, 10X, 20X, 40X, 100X (oil)	○	
S Plan Apochromat Objective Set	SPLFL2X, SPLAPO4X, 10X, 20X, 40X, 100X (oil)		○
Eyepieces	SWHK10X (2pcs.)	○	○

VANOX-T Standard Outfits

Module		AHBT-513
Microscope Stand	AHBT-F	○
Aperture Diaphragm Unit	AH2-AST	○
Power Cord	UYCP	○
Sextuple Revolving Nosepiece	AH2-6RE	○
Mechanical Stage	AH2-SVR	○
Halogen Bulb	JC12V100WHAL-L (2pcs.)	○
35mm Camera Back	PM-C35AD-4 (2pcs.)	○
Filter Set (LBT and IF550)	PM-FIL-6	○
Lens Cleaning Kit	CLEANING KIT	○
S Plan Achromat Objective Set	SPLFL2X, SPL4X, 10X, 20X, 40X, 100X (oil)	○
Eyepieces	SWHK10X (2pcs.)	○

AHBS/AHBT Specifications

Observation Tube

Binocular tube with constant tube length adjustment. Inclined 30 degrees. Interpupillary distance adjustment from 56mm to 75mm.

Revolving Nosepiece

Sextuple, motorized.

Stage

Square mechanical stage 256mm × 154mm, traversing 76mm × 50mm.

Illumination

Light source: Long life pre-centered halogen bulb 12V, 100W.

Condenser: Three condenser lenses mounted on a turret for Köhler illumination from 1X to 100X objective magnifications.

Iris Diaphragms: Built-in aperture and field iris diaphragms.

Filter: A light balancing filter for daylight color film is built-in. Built-in filter sliders accept three additional filters.

Light Intensity Control: By built-in ND filters with a constant voltage setting. Maximum voltage setting can be selected for higher light intensity.

Focusing

AHBS: Motorized coarse and fine adjustments with automatic speed control for each objective magnification. Automatic focusing for objective magnifications from 1X to 10X. A fine focusing knob is provided on the microscope stand for manual override, graduated in 2 microns.

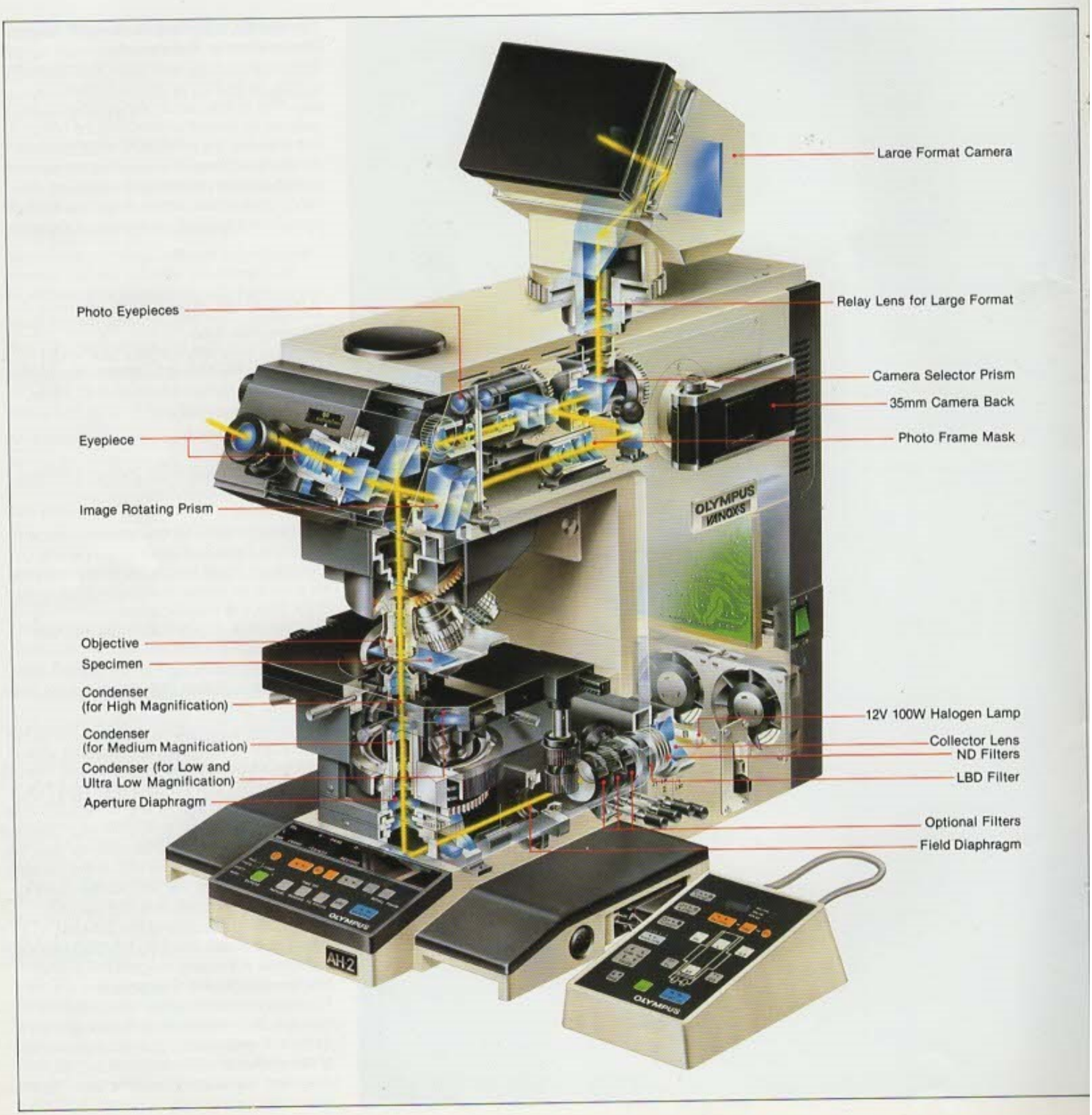
AHBT: Coaxial coarse and fine focusing adjustment knobs, fine focusing graduated in 2 microns. A focusing magnifier is built-in.

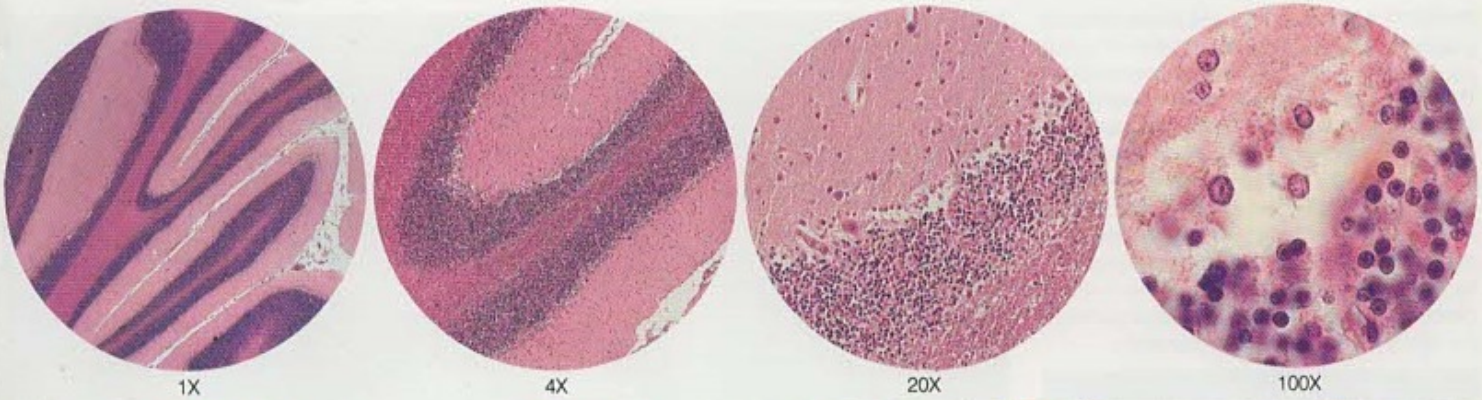
Photomicrographic Equipment

Provision for mounting two 35mm camera backs, a large format camera back and a TV camera simultaneously. Built-in turret mounted photo eyepieces: 2.5X, 3.3X, 4X and 5X. Automatic exposure control unit with 1% spot metering capability is built-in.

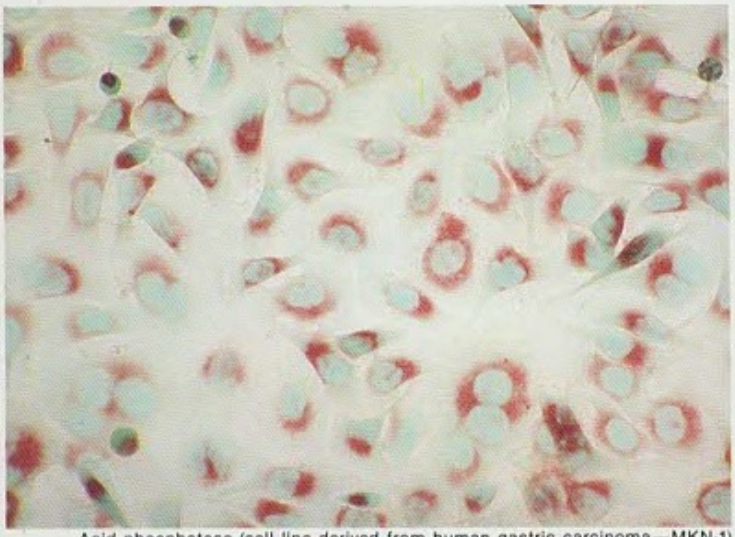
High Quality of Microscopic Images is Assured by Olympus' Superb Optical and Precision Technology

The rotating turret condenser assures full Köhler illumination for objective magnifications from 1X to 100X. It provides uniformly illuminated, high-quality images for both observation and photomicrography.

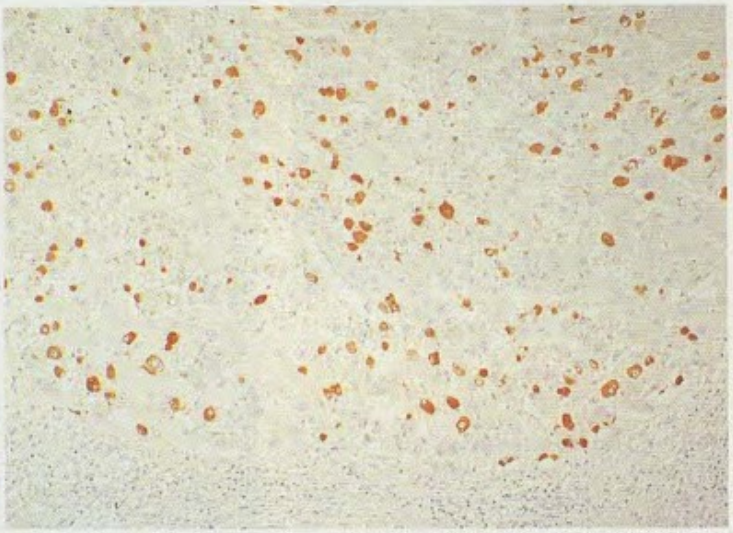




1X 4X 20X 100X

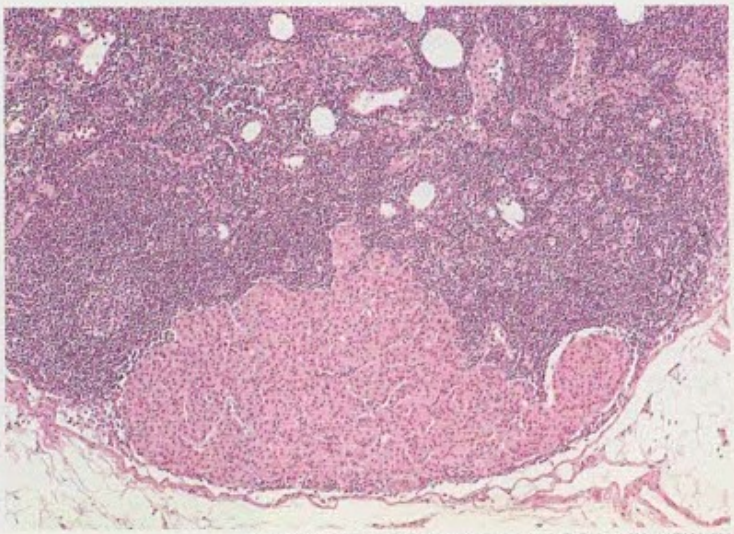


Acid phosphatase (cell line derived from human gastric carcinoma—MKN-1) S Plan 40X, NFK 2.5X



Hepatitis B surface antigen (liver, PAP method) S Plan10X, NFK2.5X

Knee joint of human fetus S Plan FL1X, NFK2.5X

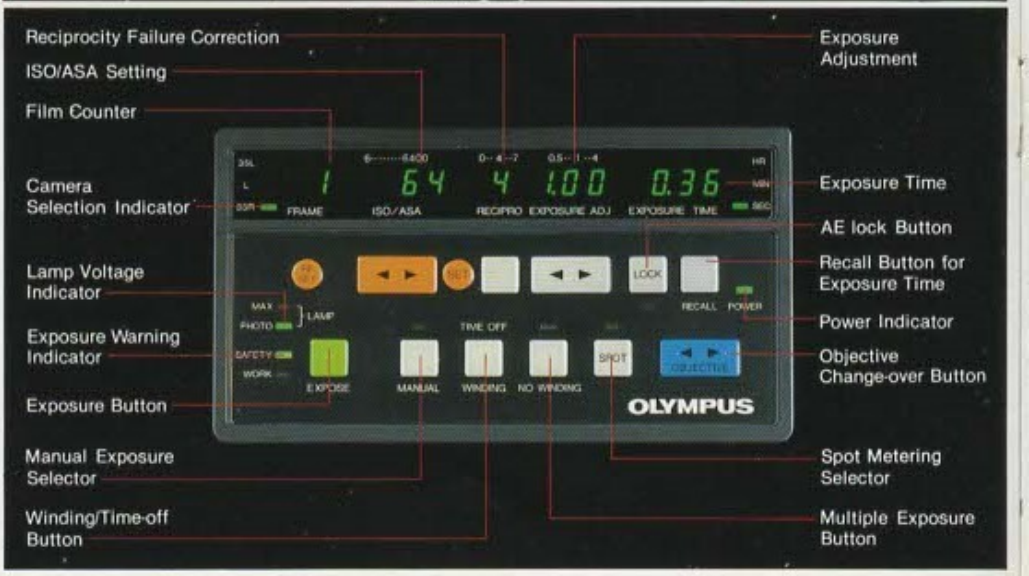


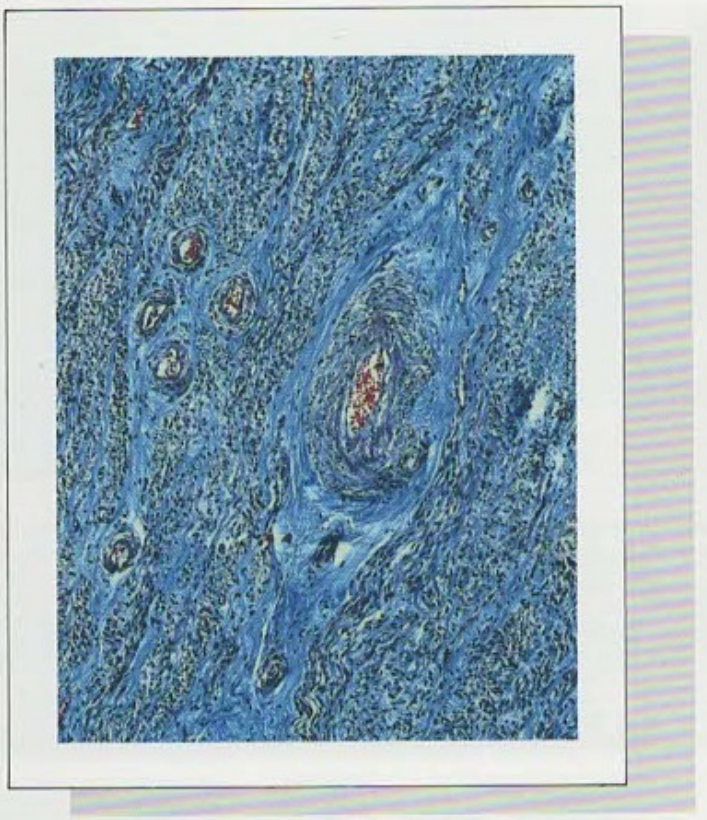
Metastatic carcinoma (lymph node) S Plan10X, NFK2.5X

Brilliant Photographs—
The Result of Outstanding Performance

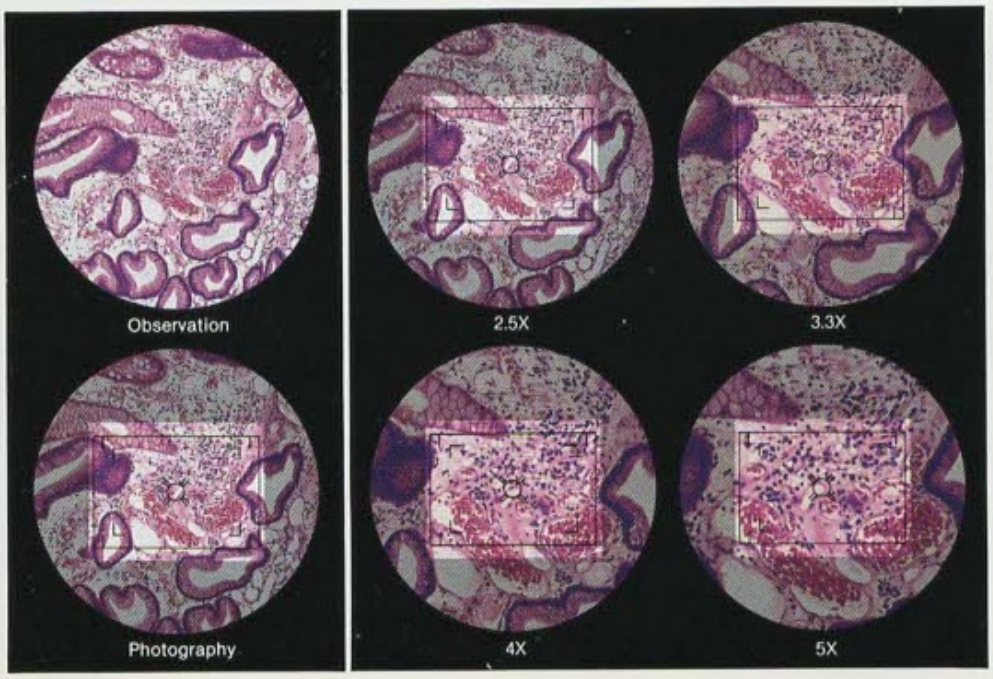
The NEW VANOX incorporates all photomicrographic functions, and the operation of taking photographs has been greatly simplified. Three different cameras can be mounted simultaneously, and the automatic exposure panel located on the microscope base front includes various functions such as 1% spot metering and 30% integrated metering, Auto-Exposure lock, exposure adjustment, multiple exposure, automatic compensation for film reciprocity failure, as well as manual exposure control. Film data for three cameras are stored and retained permanently.

Built-in computer assuring reliability for sophisticated photomicrographic functions of NEW VANOX.





Simultaneous Mounting of three Cameras
Two 35mm cameras and one large-format camera can be mounted simultaneously. Selection is by one-touch operation. Film data can also be stored separately for each camera. This feature has greatly simplified operation, since the user no longer has to reset the film data each time the camera is changed.



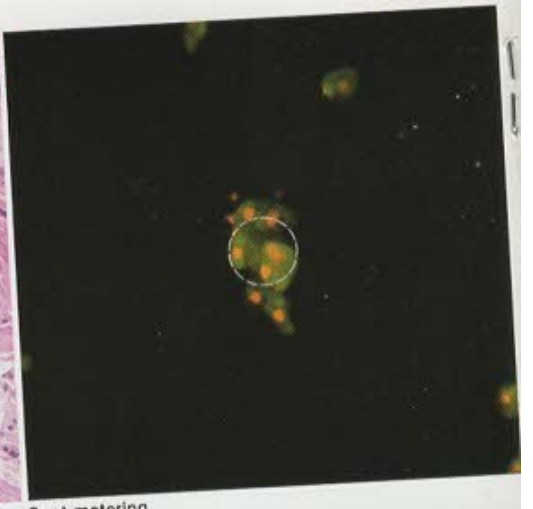
Images can be Reproduced on Film Just as They are Seen Through the Eyepieces
When changing the optical path from observation to photography, the finder frame comes into view, showing exactly the area projected on the film surface. What's more, the image can be focused with both eyes!
The amount of light outside the finder frame has been reduced, making it easier to distinguish the area to be photographed.

Four Built-in Photographic Eyepieces can be Selected by Simple Operation
Four different built-in photographic eyepieces are mounted on a turret to make selection easy. This eliminates the bother of photo eyepiece change, and picture cropping is now easier than ever before.

Change-over from Integrated Metering to Spot Metering is also Performed by One-touch Operation
The measuring area can be changed by the touch of a button. Integrated metering covers 30% of a 35mm frame, spot metering 1%. Integrated metering is suitable for uniform specimen distribution, whereas spot metering is indicated for scattered specimens and high-density specimens with uneven distribution.

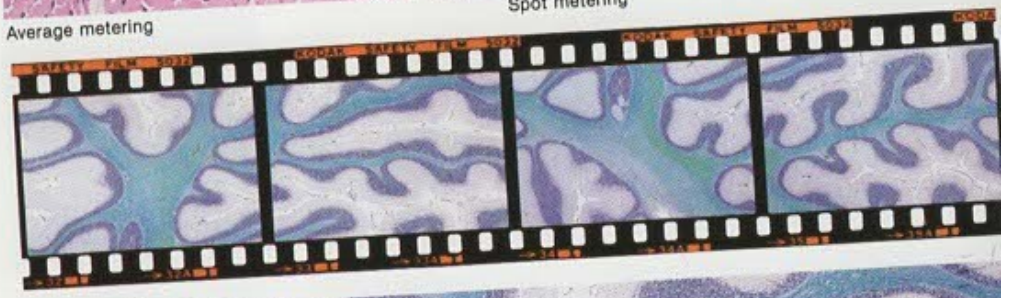
Exposure Adjustment to Match Specimen Characteristics is Possible
Both wide-ranging and fine-tuned compensation is possible, covering the spectrum from brightfield and darkfield to fluorescence.

Average metering



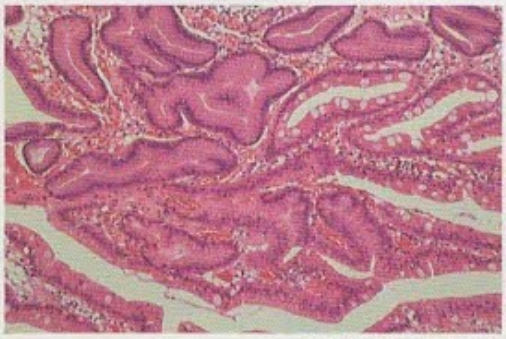
Spot metering

Use of the AE (automatic-exposure) Lock
Exposure time can be stored by pressing the AE lock button. This feature is particularly useful for panorama photography. If during 1% spot metering you want to compose a picture with the specimen out of the measuring area, i.e. the center of the frame, you can freely do so by using the AE lock after metering.

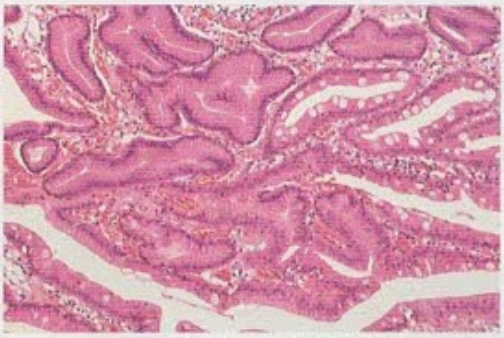


Panorama photography

Multiple Exposures can be Performed
Repeated exposures on the same frame is possible. This is a useful feature when photographing double-stained fluorescent specimens excited by two different wavelengths and when using half-frame photography.

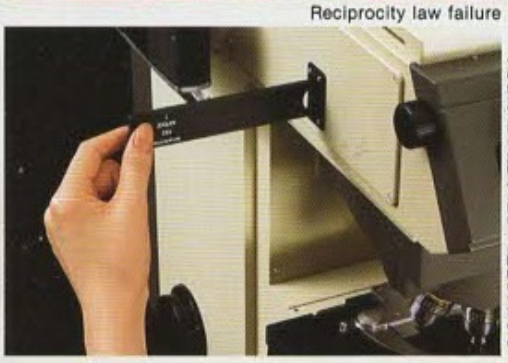


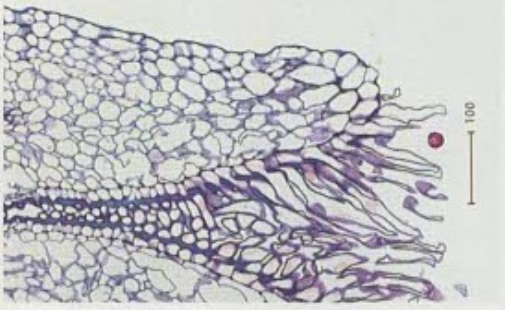
Reciprocity law failure



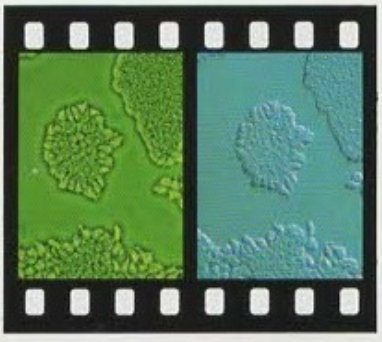
Reciprocity law failure, compensated

Storing of Film Characteristics for Reciprocity Law Failure
The built-in microcomputer stores eight different kinds of basic film characteristics. When setting the characteristics of the film, compensation for long exposure is made automatically.



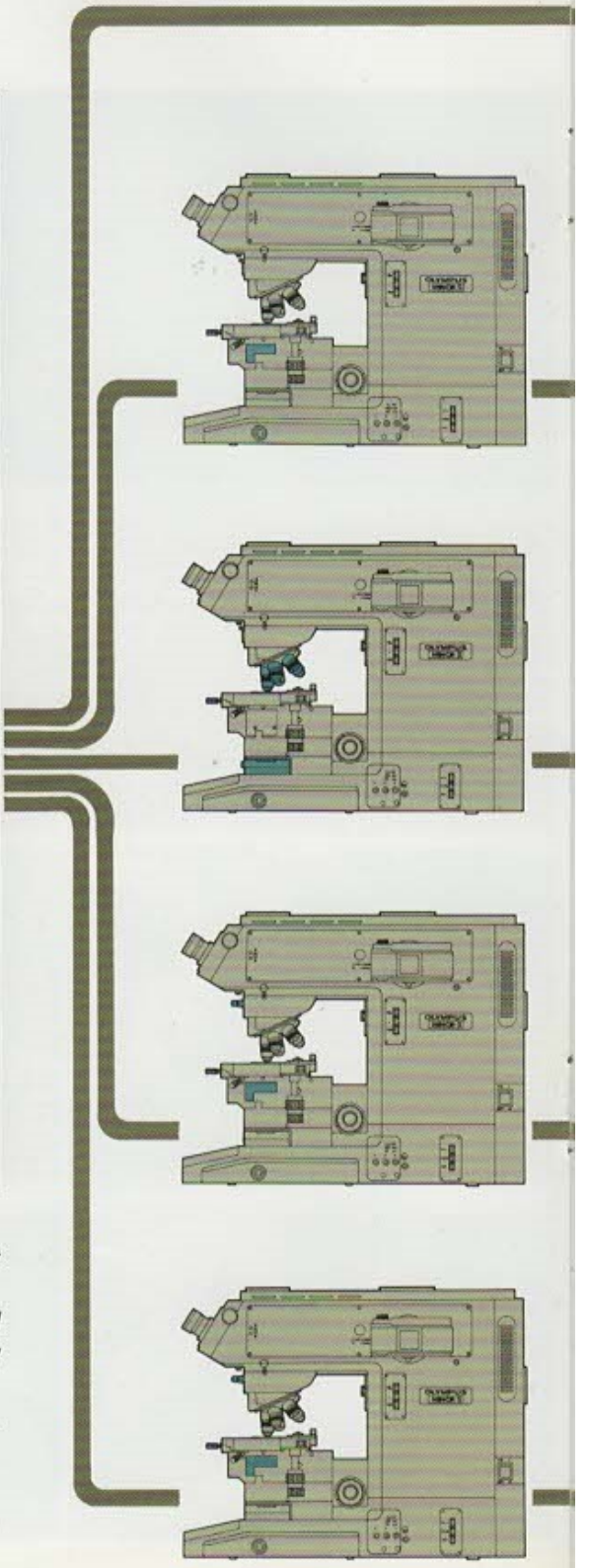


Scales can be Superimposed on the Specimen Image
Five different types of scales matching the different objective magnifications 10X, 20X, 40X, 50X and 100X are available.



Half-frame Photography
By using a slider AH2-SLH for half-frame photography, two half-frame photographs can be put on the same frame. This feature simplifies comparative examination of specimens.

Various Observation and Microscopy Methods are Performed by Simply Attaching Additional Modules



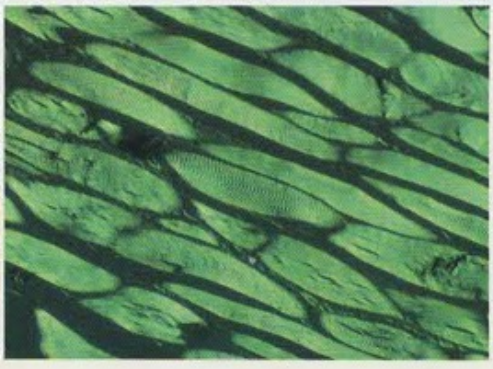
The NEW VANOX has been designed to provide speedy switch-over from one type of observation method to another by simply adding modules without changing the basic equipment. All major types of contrast methods, such as phase contrast, Nomarski differential interference contrast, and polarized light observation, as well as darkfield observation, can now be utilized easily and effectively.
Furthermore the NEW VANOX is compatible with quantitative measuring work, such as spectrophotometry and image analysis, for future needs.

Brightfield
Brightfield observation is possible without adding any further attachments.

Darkfield
Darkfield observation is possible by simply inserting the darkfield attachment slider. Regular darkfield condensers are also available for special research.

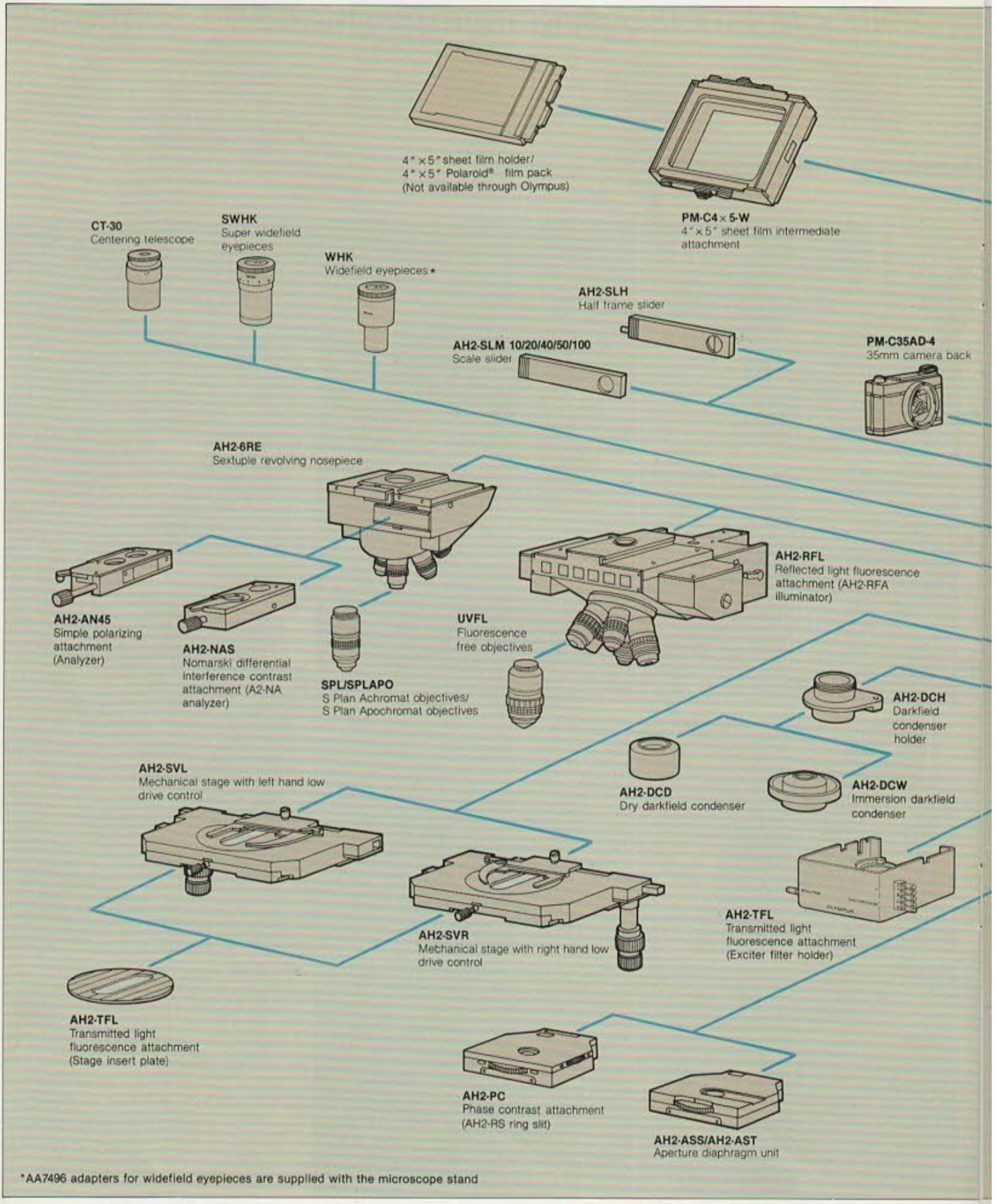
Phase Contrast
Observation is possible by mounting phase contrast objectives and a phase contrast ring slit slider.

Nomarski Differential Interference Contrast
Objectives of the S Plan series are used for this purpose. Observation is possible by mounting two sliders.

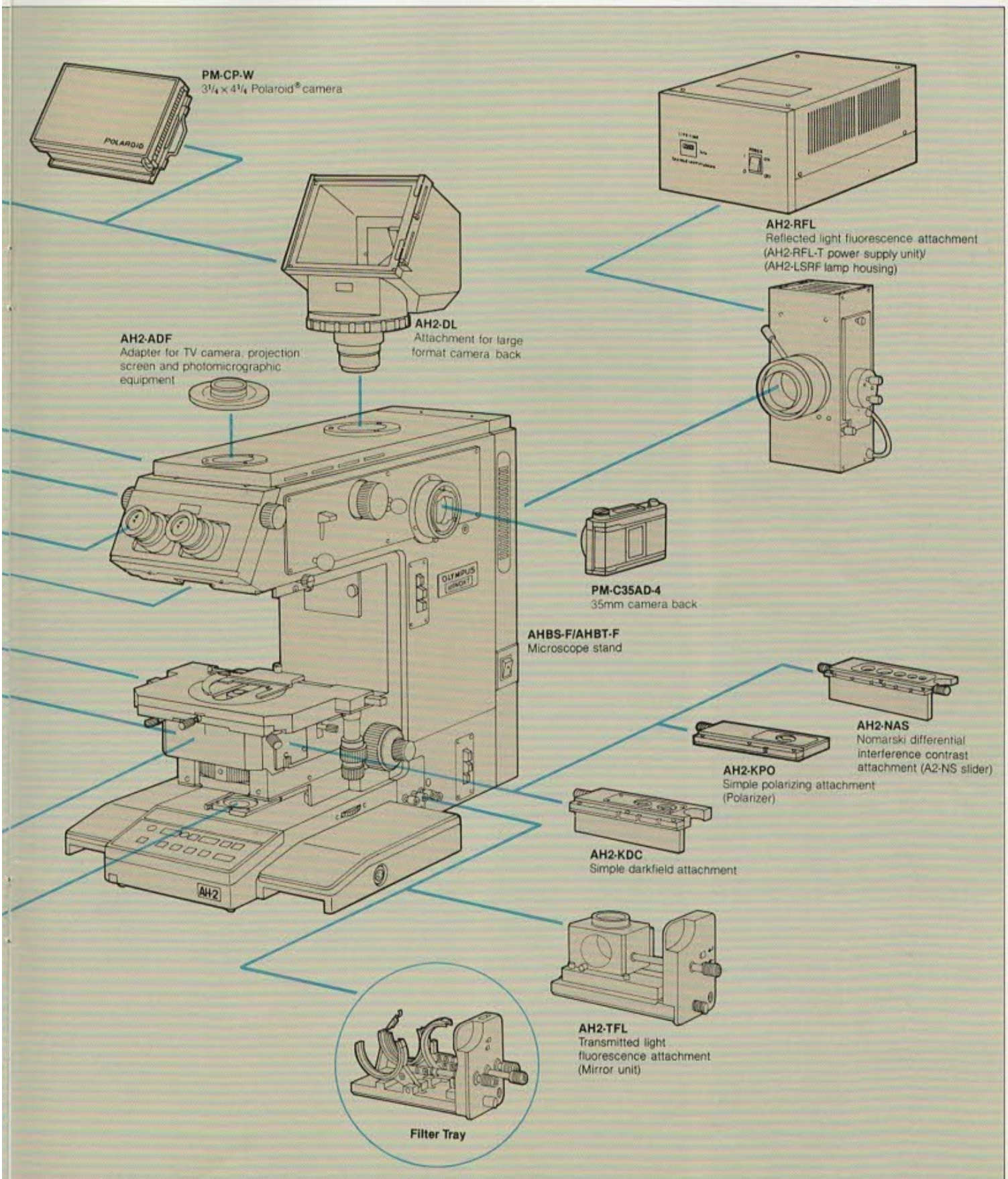


Polarized Light
Polarized light observation is possible by simply attaching a polarizer and an analyzer.

AHBS/AHBT System Diagram



*AA7496 adapters for widefield eyepieces are supplied with the microscope stand



® "Polaroid" is a trademark registered by the Polaroid Corporation, Cambridge, Mass, U.S.A.

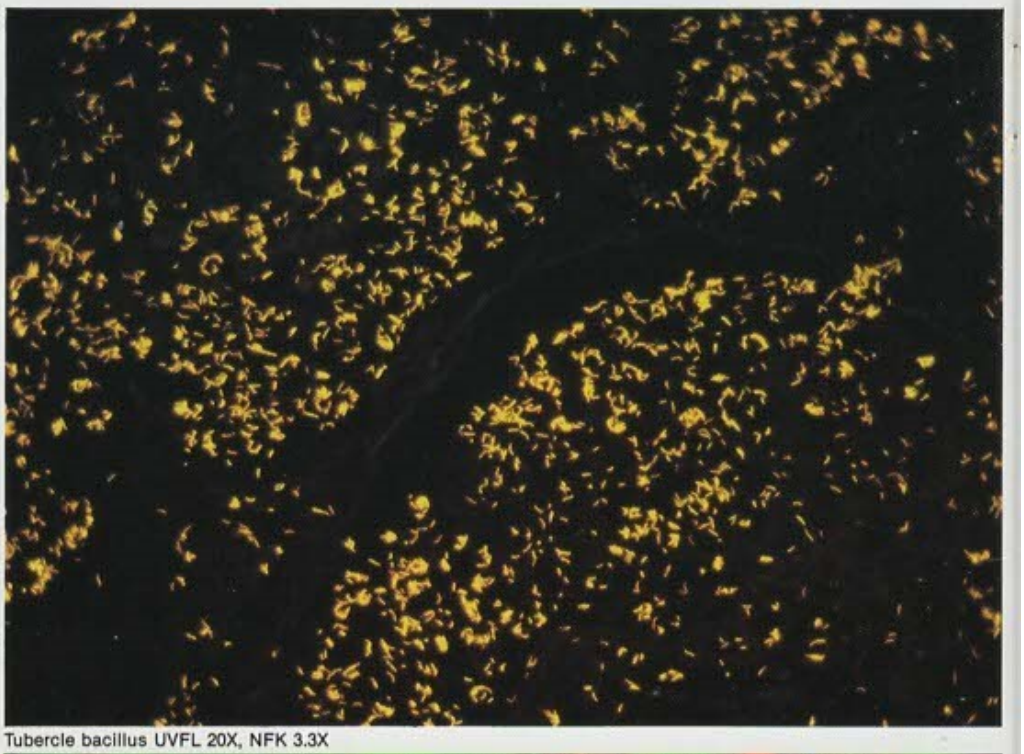
Fluorescence Attachment

AH2-RFL Reflected Light Fluorescence Attachment

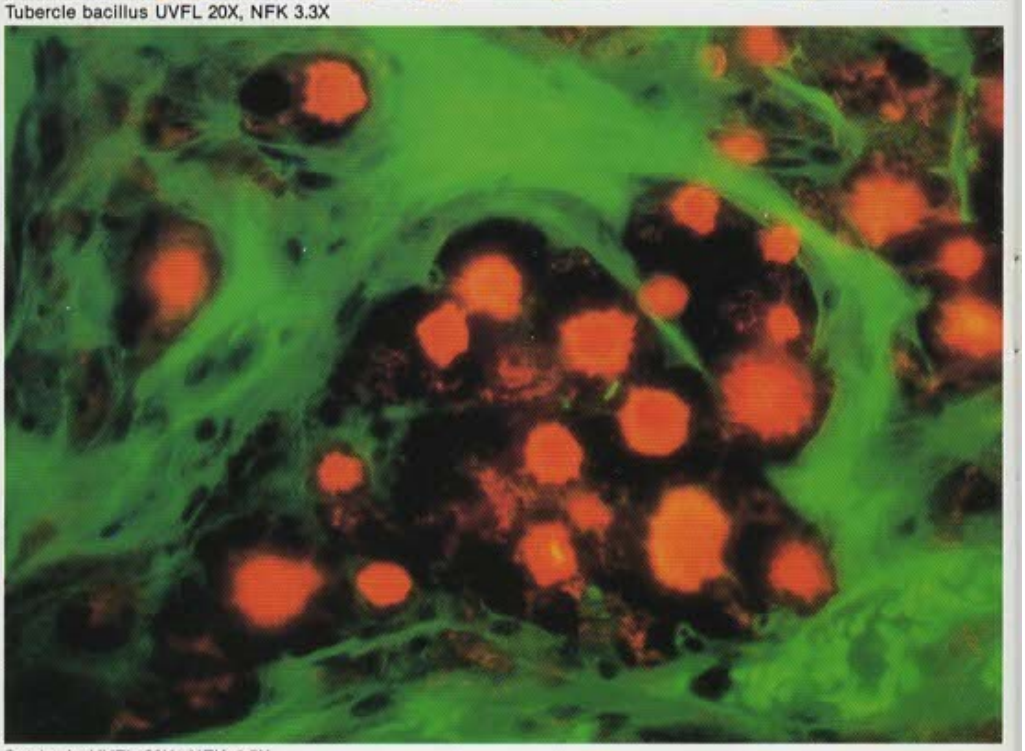
Switchover from one excitation method to another is carried out by push-button operation. An auxiliary filter can be used to cover the spectrum from wide-band to narrow-band excitation.
The combination of the newly designed optical system and a high-power 200W mercury lamp, plus improved filters results in brighter fluorescent images, which are clearly visible even in weak fluorescence.

Simultaneous Observation of Reflected-light Fluorescence and Transmitted-light Phase Contrast Images

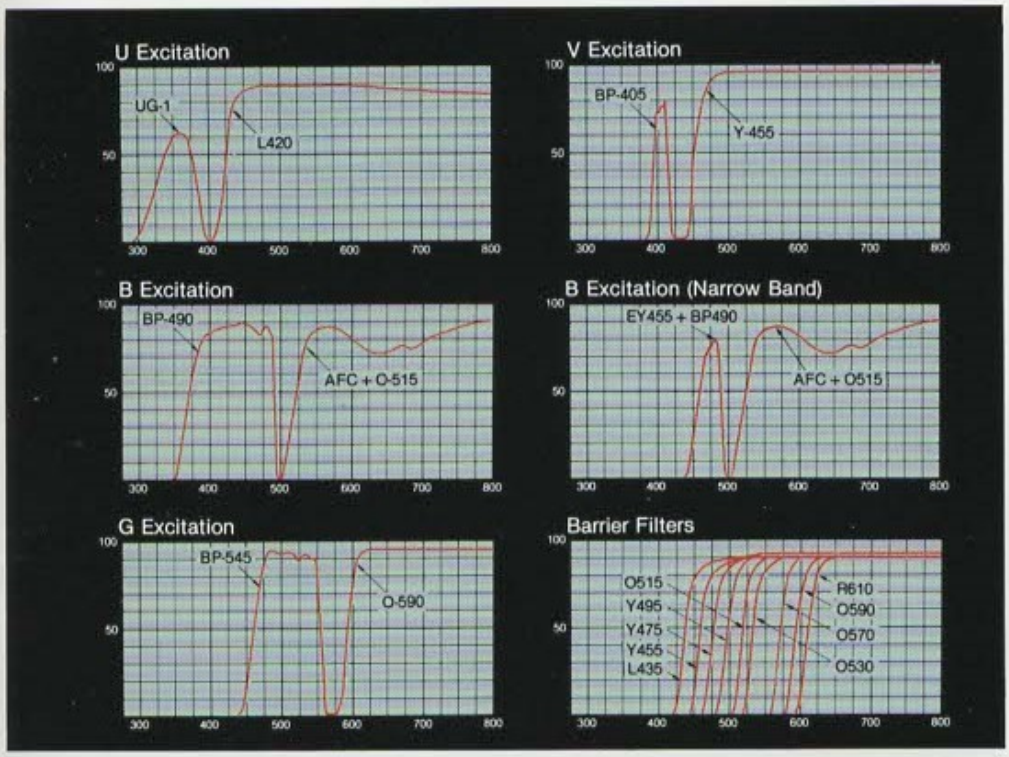
Simultaneous observation is possible by mounting a ring slit just as in phase contrast observation. UVFL-40X PL and 100X PL objectives are used for this purpose.



Tubercle bacillus UVFL 20X, NFK 3.3X



Cat brain UVFL 20X, NFK 2.5X



AH2-FL Transmitted and Reflected Light Fluorescence Attachment

This attachment facilitates both transmitted and reflected light fluorescence microscopy. Transition between the two illumination methods is extremely easy, requiring a simple manipulation of the levers on the fluorescence illuminator and the mirror unit. The dark background obtained under transmitted light illumination provides better observation results with higher contrast fluorescence images.

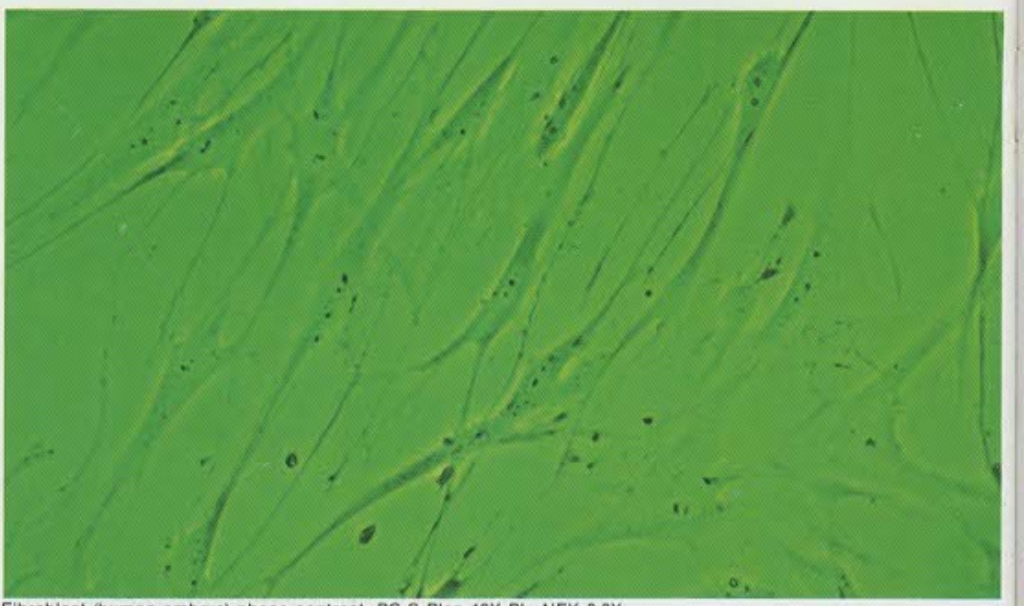
*Power supply unit and lamp housing are excluded.

AH2-RFL/AH2-FL Standard Outfits

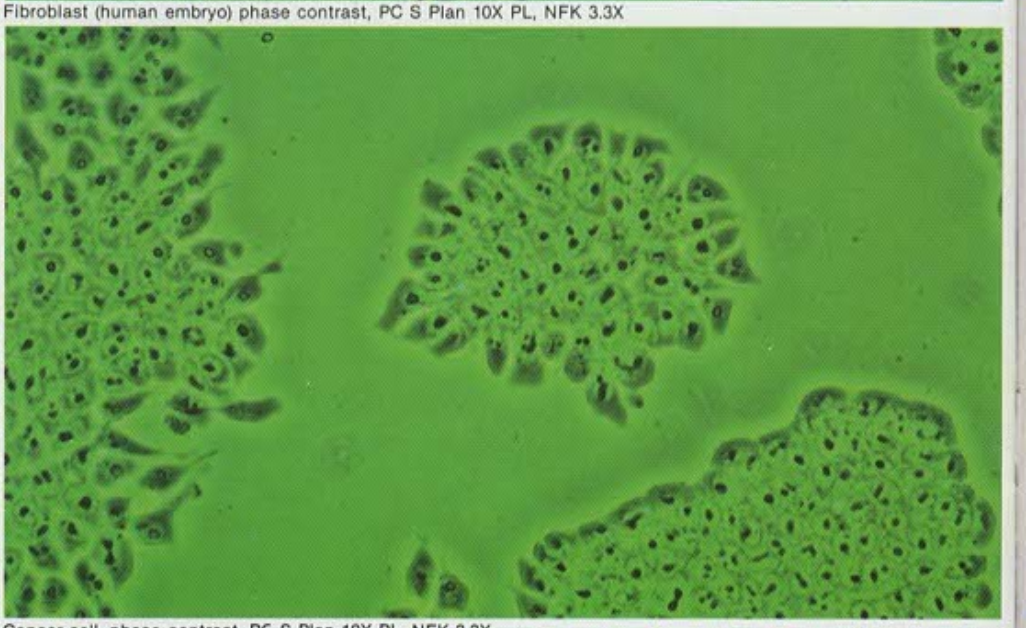
Module			AH2-RFL	AH2-FL
Reflected Light Fluorescence Illuminator	For U, V, B, G Excitation	AH2-RFA	○	○
Transmitted Light Fluorescence Attachment		AH2-TFL		○
Darkfield Condenser Holder		AH2-DCH		○
Immersion Darkfield Condenser		AH2-DCW		○
Dry Darkfield Condenser		AH2-DCD		○
Lamp Housing		AH2-LSRF	○	○
Mercury Burner		HBO200W/2	○	○
Power Supply Unit		AH2-RFL-T2	○	○
Power Cord		UYCP	○	○
Centering Screen		BH2-SGRF	○	
Exciter Filters for Transmitted Light Fluorescence	For U Excitation	50UG1		○
	For V Excitation	50BP405		○
	For B Excitation	50BP490		○
	For G Excitation	50BP545		○
Supplementary Exciter Filters for Transmitted Light Fluorescence	For B Excitation	50EL435		○
	For G Excitation	50EY475/50EO515/50EO530		○
Supplementary Exciter Filters for Reflected Light Fluorescence	For B Excitation	20EL435-W22/20EY455-W22	○	○
	For G Excitation	20EY475-W22/20EO515-W22/20EO530-W22	○	○
Supplementary Barrier Filters for Reflected Light Fluorescence	For U Excitation	20L435-W22/20Y455-W22	○	○
	For V Excitation	20Y475-W22/20Y495-W22/20O515-W22	○	○
	For B Excitation	20B460-W22/20O530-W22/20O570-W22/20O590-W22	○	○
	For G Excitation	20R610-W22	○	○
ND Filter for Reflected Light Fluorescence		20ND25-W22	○	○
Fluorescence-free Objectives		UVFL10X, 20X, 40X (oil), 100X (oil)	○	○

Phase Contrast Attachment

Living organisms such as cells and micro-organisms can be observed without staining. Two types of contrast, negative and positive, are available. Negative contrast is suitable for observing shape and movement of the object, while positive contrast is indicated for observation of minute structural details of the objects. For each type of contrast, five objectives (4X, 10X, 20X, 40X, and 100X, respectively) are available.



Fibroblast (human embryo) phase contrast, PC S Plan 10X PL, NFK 3.3X

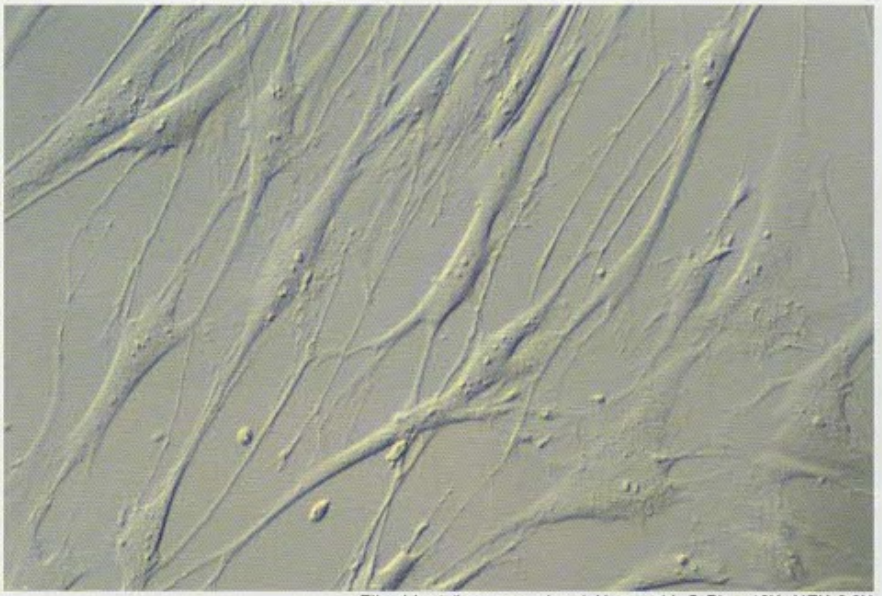


Cancer cell, phase contrast, PC S Plan 10X PL, NFK 3.3X

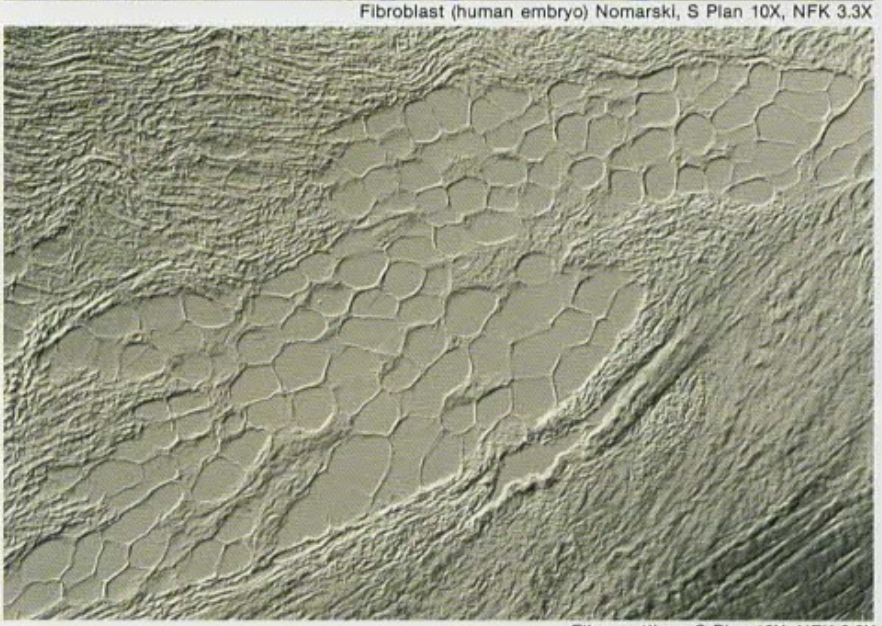
AH2-PC Standard Outfits

Module		AH2-PC 1	AH2-PC 2
Ring Slit Unit	AH2-RS	○	○
Green Filter	43IF550-W45	○	○
Positive Contrast Objectives	PC S PL 4XPL, 10XPL, 20XPL, 40XPL, 100XPL (oil)	○	○
Negative Contrast Objectives	PC S PL 4XNH, 10XNH, 20XNH, 40XNH, 100XNH (oil)	○	
Centering Telescope	CT-30	○	○

Nomarski Differential Interference Contrast Attachment



Fibroblast (human embryo) Nomarski, S Plan 10X, NFK 3.3X



Fibrocartilage S Plan 10X, NFK 3.3X

AH2-NAS Standard Outfits

Module		AH2-NAS
Differential Interference Contrast Slider	A2-NS	○
Differential Interference Contrast Analyzer	A2-NA	○

Nomarski differential interference contrast is suitable for observation of living cells and microorganisms without staining, similar to phase contrast. Detecting sensitivity is high, providing relief-like observation images for minute structural details.

**S Plan Achromat objectives (optional) should be used for differential interference contrast observation.*

LB Series Objectives and Eyepieces

S Plan Apochromat Objectives

Magnification	N.A.	W.D. (mm)
S Plan Apo 4X	0.16	9.83
S Plan Apo 10X	0.40	0.55
S Plan Apo 20X	0.70	0.55
S Plan Apo 40X	0.95	0.13
S Plan Apo 60X oil	1.40	0.12
S Plan Apo 100X oil	1.40	0.15

S Plan Apochromat

S Plan Achromat Objectives

Magnification	N.A.	W.D. (mm)
S Plan FL 1X*	0.04	2.20
S Plan FL 2X	0.08	5.50
S Plan 4X	0.13	15.50
S Plan 10X	0.30	7.50
S Plan 20X	0.46	1.50
S Plan 40X	0.70	0.50
S Plan 100X oil	1.25	0.17
S Plan 100X dry	0.95	0.20

S Plan Achromat

No Cover Objectives

Magnification	N.A.	W.D. (mm)
NC S Plan 40X	0.70	0.45
NC S Plan 100X dry	0.95	0.30
NC S Plan Apo 100X oil	1.40	0.17
NC D Plan FL* 60X dry	0.95	0.14

No Cover

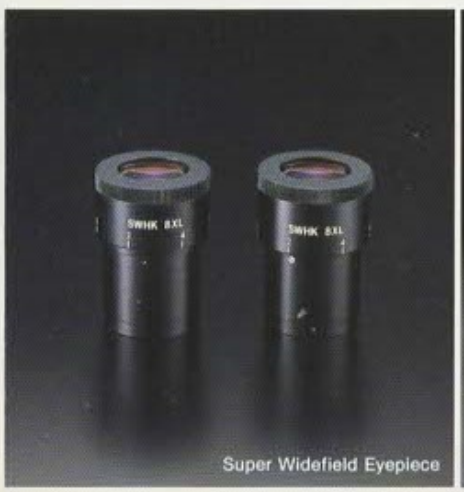
*Designed for Field Number 21; not recommended for super widefield observation

Fluorescence-free

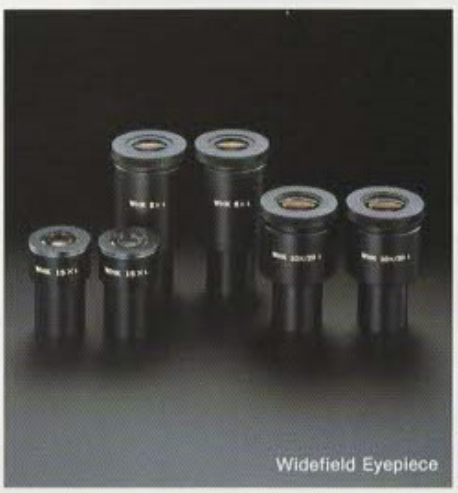
Fluorescence-free Phase Contrast

Phase Contrast (positive)

Phase Contrast (negative)



Super Widefield Eyepiece



Widefield Eyepiece

Fluorescence-free Objectives

Magnification	N.A.	W.D. (mm)
UVFL 10X	0.40	1.16
UVFL 20X	0.65	1.03
UVFL 40X dry	0.85	0.25
UVFL 40X oil	1.30	0.11
UVFL 100X oil	1.30	0.14

Fluorescence-free Phase Contrast Objectives

Magnification	N.A.	W.D. (mm)
UVFL 40X PL oil	1.30	0.11
UVFL 100X PL oil	1.30	0.14

Phase Contrast Objectives (positive)

Magnification	N.A.	W.D. (mm)
S Plan 4X PL	0.13	15.50
S Plan 10X PL	0.30	7.50
S Plan 20X PL	0.46	1.50
S Plan 40X PL	0.70	0.50
S Plan 100X PL oil	1.25	0.17

Phase Contrast Objectives (negative)

Magnification	N.A.	W.D. (mm)
S Plan 4X NH	0.13	15.50
S Plan 10X NH	0.30	7.50
S Plan 20X NH	0.46	1.50
S Plan 40X NH	0.70	0.50
S Plan 100X NH oil	1.25	0.17

Super Widefield Eyepiece

Magnification	F.N.
SWHK 8X	26.5

Widefield Eyepieces

Magnification	F.N.
WHK 8X	20
WHK 10X	20
WHK 15X	14

A pair of adapters for widefield eyepieces is supplied with the microscope stand.

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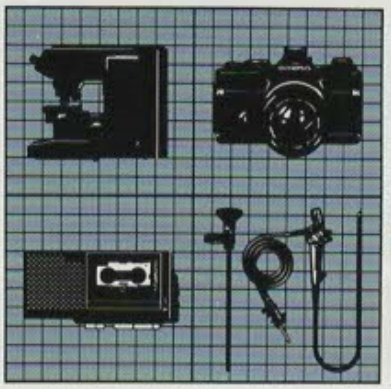

Photographic,
Medical,
Microscopic,
Industrial & Business Equipment

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Printed in Japan M205E-1185B