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**Monocular and Digital Monocular
 Biological & Compound
 Microscopes**

TM200 SERIES BY MEIJI Superior Japanese Quality Educational Microscopes
MRJ-01-\$298.99 Monocular Microscope with 4 DIN objectives. OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS
MF-01-\$243.99 Monocular Microscope with 4 DIN achromatic parfocal objectives. OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS
MS-01-\$126.99 Monocular Microscope with 3 DIN objectives. OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS
MSK-01-\$97.99 Monocular Microscope with 3 DIN objectives.
MS-03-\$186.99 Monocular Microscope with 4 DIN objectives. Mag. up to 1000X OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS
MFL-02-\$88.00

**ML9000 SERIES POLARIZING MICROSCOPES FOR TRANSM
 LIGHT MICROSCOPY**



ML9000 SERIES POLARIZING MICROSCOPES WITH SLIDING ANALYZE

MODEL NO.	DESCRIPTION	US\$ PRICE
ML9200	 <ul style="list-style-type: none"> • Polarizing microscope, binocular head with DIN standard eyepiece HWF10X and DIN focusing HWF10XF eyepiece with cross-line reticle. • Centerable quadruple nosepiece with SM Plan strain free objectives 4X, 10X, 40X(S) (Magnification factor 1.5X) • Rotatable stage with graduation 360°, with vernier, Abbe condenser NA 1.25 with Iris, filter holder and blue filter. • Rotatable polarizer in swing-out mount, analyzer and Bertrand lens in sliding mount. • Coaxial coarse and fine adjustment with graduation, built-in Koehler illuminator with halogen lamp 6V 30W light intensity control. • Includes Mica 1/4 wave plate and first order red plate. • Supplied with dust cover in styrofoam case. 	3,800.00
ML9300	• Same as ML9200 but with trinocular head with beam-splitter	4,005.00
ML9100	• Same as ML9200 but with monocular head	3,490.00

COMPONENTS & ACCESSORIES FOR ML9000 SERIES

MODEL NO. DESCRIPTION US\$ PRICE

VIEWING HEADS

MA647 Binocular head, 30° inclination. One eyetube slotted for orientation of cross-line eyepiece. (Included with ML9200, ML9720 and ML9420) 580.00

MA648 Trinocular head, 30° inclination. One eyetube slotted for orientation of cross-line eyepiece, but with 80%/20% beam-splitter and vertical phototube. (Included with ML9300, 10930 and ML9430) 765.00

MA649 Monocular head, 30° inclination. Eyetube slotted for orientation of cross-line eyepiece. (Included in ML9100, ML9710 and ML9410) 180.00

Monocular Microscope with 3 objectives.
MFL-05-\$88.00 Rechgb/Cordless
Monocular Microscope with 3 objectives.
MFL-Duo-Scope-\$59.99
Monocular Microscope with 3 objectives.
Accu-Scope 3023-\$450.00
4x, 10x, SP40xR & SP100xR Oil CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3070-\$385.00
4x, 10x, SP40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3071-\$450.00
10x, 40xR, 100xR oil CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3079-\$325.00
4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3080-\$260.00
4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3080-T-\$370.00
4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3080-MS-\$360.00
4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3080-TMS-\$475.00
4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3081-\$425.00
4x, 10x, 40xR, 100xR oil CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3081T-\$530.00
4x, 10x, 40xR, 100xR oil CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3088F-\$225.00
Locked 4x, 10x, 40xR
Accu-Scope 3088F-T-\$345.00
Locked 4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3088F-MS-\$275.00
Locked 4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3088F-TMS-\$400.00
Locked 4x, 10x, 40xR CLICKING ABOVE WILL TAKE YOU TO OUR ACCU-SCOPE MICROSCOPES WEBSITE
Accu-Scope 3088F-I-\$230.00
Locked 4x, 10x, 40xR
Accu-Scope 3088M-\$200.00
Locked 4x, 10x, 40xR
Accu-Scope 3089F-\$355.00
4x, 10x, 40xR, and 100xR oil
Accu-Scope 3088-LED-\$237.00
Locked 4x, 10x, 40xR
Accu-Scope 3088MS-LED-\$290.00
Locked 4x, 10x, 40xR
Accu-Scope 3088T-LED-\$375.00
Locked 4x, 10x, 40xR
Accu-Scope 3089-LED-\$375.00
Locked 4x, 10x, 40xR, and 100xR oil
Accu-Scope Elementary 1112-\$125.00

MA656 Binocular head, erect image 763.00

MA666 Trinocular head, erect image (100% cutoff of left eyetube occurs when the beam splitter is move position) 1200.00

EYEPIECES

MA406 DIN HWF10X eyepiece, FN 18mm (ea) 60.00

MA413CP DIN focusing HWF10X eyepiece with cross-line and guide pin (ea) 170.00

POL OBJECTIVES

MA641 SM Plan strain free objective 4X/N.A.0.10 73.00

MA642 SM Plan strain free objective 10X/N.A.0.25 113.00

MA643 SM Plan strain free objective 20XS/N.A.0.40 165.00

MA644 SM Plan strain free objective 40XS/N.A.0.65 186.00

MA645 SM Plan strain free objective 60XS/N.A.0.85 230.00

MA646 SM Plan strain free objective 100XS/N.A.1.25 oil 240.00

MISCELLANEOUS

MA609/05 Wooden cabinet with lock and key for ML9000 series 160.00

MA299 Attachable mechanical stage for ML9000 Series 650.00

MA326 Spare halogen bulb 6V 30W 20.00

MA327 Fuse 3A 1.00

MA469 1/4 wave-length test plate in sliding mount 189.00

MA654 Quartz wedge 6 order 813.00

MA654N Quartz wedge 6 order graduated 1318.00

MA470 First order red compensating plate in sliding mount 189.00

MA471 Replacement analyzer in sliding mount for ML9000 Series 189.00

MA477 Replacement Bertrand lens in sliding mount for ML9000 Series 189.00

MA665 Strain free achromatic polarizing condenser N.A. 1.25 with iris diaphragm and filter tray for ML9000 Series Polarizing microscope 176.00

MA712 Dust cover for ML9000, ML9700 & ML9400 Series 5.00

MA905 Interference color chart 6.00

BASIC POLARIZED LIGHT MICROSCOPY TERMINOLOGY COMPENSATORS & RETARDATION PLATES

Polarized Light microscopy is a useful tool for distinguishing between singly refracting (optically isotropic) and doubly refracting (optically anisotropic) material. Quantitative measurements of optical anisotropy is used in the optical analysis of doubly refracting or birefringent materials under polarized light. These measurements are made with the aid of accessory plates called compensators and retardation plates. Retardation plates have a fixed optical path difference and compensators have a variable optical path difference. The intermediate tube of the Meiji polarized light microscope houses either sliding or rotatable analyzer, a sliding Bertrand lens and a slot for insertion of retardation plates and compensators. The dimensions of the compensator/retardation plate are DIN standard 20mm X 6mm.

QUARTER WAVE-PLATE - The quarter wave length retardation plate is a thin slice of birefringent material (e.g. mica) cut to a thickness to give $1/4 \lambda$ optical path difference (OPD) in yellow light of about 145nm. The quarter wave-plate changes linear or plane polarized light into circularly polarized light. The quarter wave-plate is useful for qualitative analysis of orthoscopic and conosopic images. The quarter wave plate is also used for assessment of optical path differences in birefringent specimens. $1/4 \lambda$ plate 145nm

FIRST ORDER RED PLATE - The first order retardation plate is a thin slice of birefringent material (e.g. gypsum) cut to a thickness to give 1λ optical path difference (OPD) for green light. The first order red plate is frequently used to determine the optical sign (positive or negative) of a birefringent specimen and is also utilized for contrast enhancement in weakly birefringent specimens. The first order red plate produces an interference color having a typical tint of the first order red. The first order red plate is known by several names, including: gypsum plate, lambda plate, sensitive tint plate, and full wave plate. 1λ plate = 550nm

QUARTZ WEDGE - The quartz wedge is a variable compensator which is designed to produce a range of retardation values as the wedge is moved in and out of the optical path. The thin edge of the wedge produces an optical path difference of zero. The optical path difference increases with increasing thickness of the wedge. Each separate wavelength in the spectrum produces a series of dark extinction bands of which the OPD is exactly one wavelength apart. Specimen retardation values can be determined by observing changes in the polarization properties of birefringent specimens as the wedge thickness in the light path varies. Meiji's quartz wedge permits retardation measurements from 1-6 wavelengths.

SENARMONT COMPENSATOR - The Senarmont compensator is useful tool for

Locked 4x, 10x, 40xR

[CXE-\\$229.00](#)

Monocular Microscope 3 illumination systems EP series DIN Semi Plan Achromatic objectives. Mag. up to 400X

[DIGI1-\\$862.00](#)

Monocular Microscope with built-in 0.8 mega pixel Digital Imaging Module Mag. up to 1000X

[CXLM-\\$339.00](#)

Monocular Microscope LP series DIN Semi Plan Achromatic objectives Mag. up to 1000X

Binocular and Digital Binocular Biological & Compound Microscopes & EPI-Fluorescent Microscopes

[MRP-3000-\\$423.99](#)

Binocular Microscope with 4 DIN achromatic objectives. **OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS**

[MRP-5000-\\$448.99](#)

Binocular Microscope with 5 DIN achromatic objectives. Mag. up to 1000X - **OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS**

[MRJ-03-\\$378.99](#)

Binocular Microscope with 4 DIN objectives. **OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS**

[MAX-200-\\$762.99](#)

Binocular Microscope with 4 DIN achromatic objectives. Mag. up to 1000X

[MF-02-\\$298.99](#)

Binocular Microscope with 4 DIN achromatic parfocal objectives. - **OPTIONAL PLAN OBJECTIVES CAN BE PURCHASED IN EXCHANGE FOR ACHROMATICS**

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[MT8500 SERIES BY MEIJI](#)

Binocular Microscope

measurement of retardation levels of crystals, living organisms and also for measuring permanent stresses in clear materials. The Senarmont compensator is also used for image contrast enhancement of weakly birefringent specimens.

ANALYZER - A polar plate in the light path after the specimen. The analyzer is removable from the light path and may be rotatable. The analyzer is used to determine the optical effects produced by the specimen either in plane or polarized light.

BERTRAND LENS - The Bertrand lens is located above the analyzer. The eyepiece and Bertrand lens act as a system to focus on the back image plane of the objective. The Bertrand lens main function is to view interference figures (conoscopic images) which appear in the back image plane of the objective when the specimen is viewed between crossed polars using highly convergent light from the condenser.

BIREFRINGENCE - A quantitative expression of the separation of a light beam as it penetrates a doubly refracting object into two diverging beams..

CONOSCOPIC FIGURE - A pattern consisting of isogyres and/or isochromatic curves formed in the back image plane of the objective also referred to as an interference figure.

CONOSCOPIC OBSERVATION - Observation of the conoscopic or interference figure by means of a Bertrand lens.

PLANE-POLARIZED LIGHT - Light with only one vibration direction present.

PLEOCHROISM - A property exhibited by certain crystals of absorbing selectively various wavelengths of light and of displaying different colors when looked at in the directions of their various crystal axes.

POLAR - A device which produces plane polarized light from natural light.

POLARIZER - A polar placed in the light path before the specimen.

STRAIN FREE - A term used to signify that microscope objectives and condenser lenses are selected to have a minimum amount of internal stress in the glass. Strain free optics offers little or no contribution to the optical path difference of the specimen.

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