

Kowa



Technology for Lifescience

KOWA Fundus Camera

fx-50R



**Innovative filter system provides new Capabilities
for advanced fundus photography.**



User-Friendly Controls to Simplify Photography

Select either the upper or lower camera back using the one-touch control on the right side of the camera base. A second control starts the automatic timer; its 5-digit LED display is on the main control panel. On the left side of the camera base are three dials; one controls the viewing illumination level variably and the others control flash output automatically. The preset exposure value can be adjusted $\pm 1\text{EV}$ for fine control. Manual operation also can be available.



Dual Camera Backs and 2 Angles of View

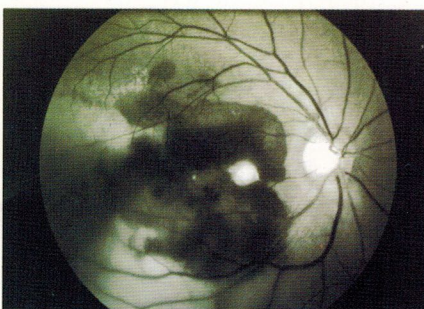
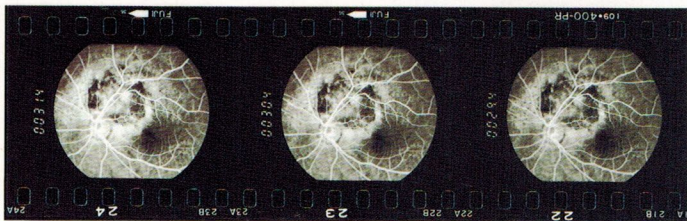
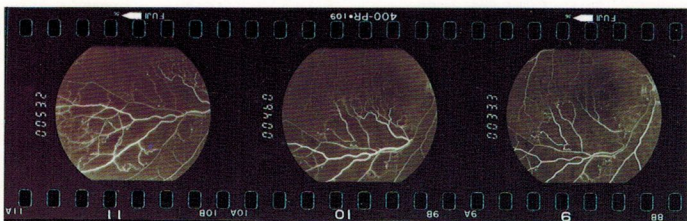
The fx-50R incorporates dual camera back mounts, switchable with a single touch. The upper mount accepts a 35mm camera back; the lower one accepts either 35mm or a Polaroid-type back. For optimum versatility in record-keeping and notation, hand-written data or time can be recorded on the left edge of each 35mm frame during exposure. The operator can also select either 50° or 35° angle of view simply by shifting the lever on the left side of the camera body. Continuous focusing extends from -20 to $+20$ diopters. By pulling the knob above the barrier filter, the operator inserts a supplementary lens that doubles magnification power to $+40$ diopters, without causing focus shift and retaining data entry capability.



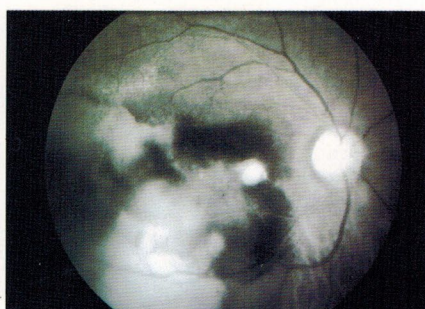
Innovative Filter System Provides New Capabilities for Advanced Retinal Photography

A turret-type filter wheel intercepts the optical path to provide four types of filtration: (W) for color photography, (F) for fluorescein photography, (G) for red-free photography and (R) for angiography. The fx-50R automatically adjusts exposure controls for accurate results with the insertion of each filter. During fluorescein angiography, inserting the barrier filter at the top of the optical path automatically increases illumination intensity. The filter wheel must be set in the (F) position when the barrier filter is inserted; otherwise an audible warning sounds and the shutter release is inactivated.

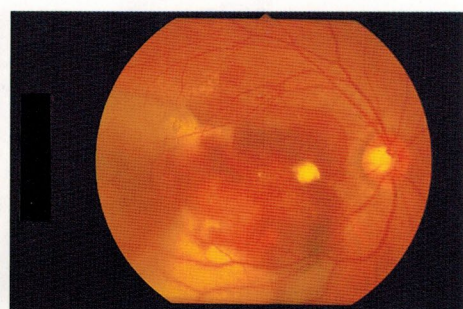
Sample Retinal Photographs:



Red Free Photography



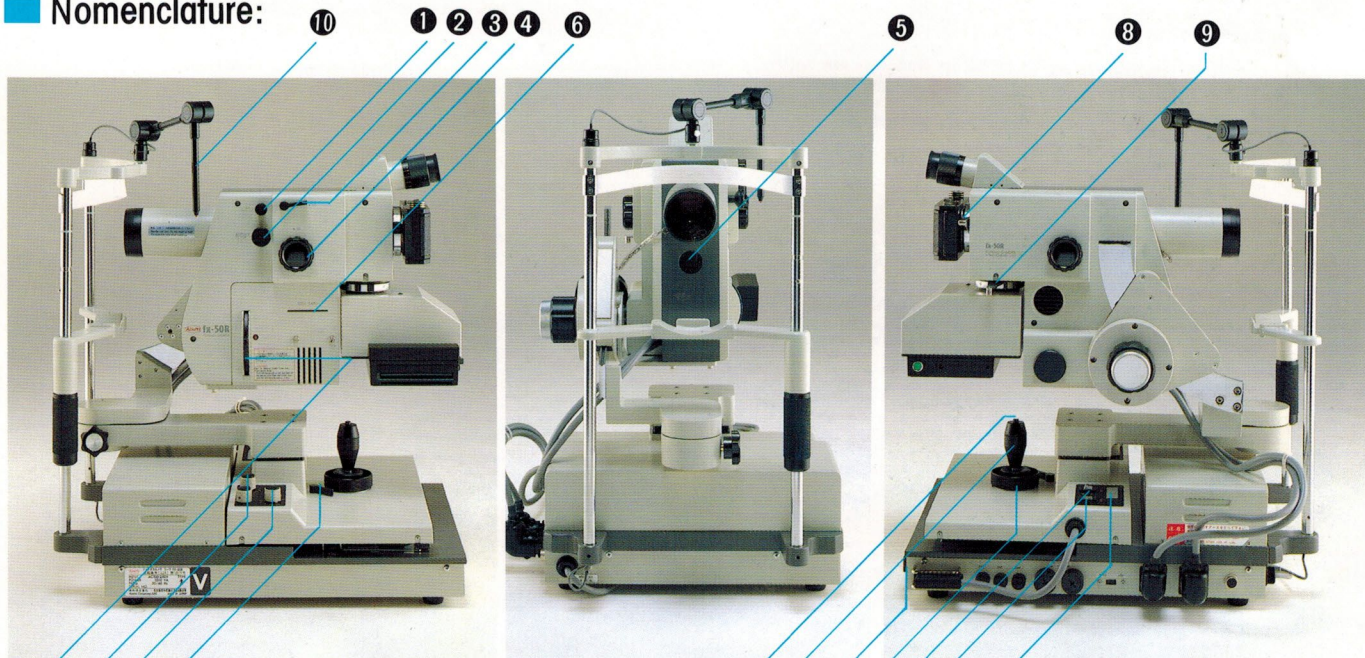
Red Filter Photography



The Following Systems are available as fx-50 series.

- fx-50C (50° & 25° angle) Color Fundus Photography Systems (35mm & Polaroid).
- fx-50R (50° & 35° angle) Color Fundus Photography (35mm & Polaroid), and Fluorescein angiography Systems (35mm & Polaroid).

Nomenclature:



- | | | | |
|---|-----------------------------|--------------------------------------|--|
| ① External Correction Knob | ⑦ Filter Turret | ⑬ Joystick Alignment Control | ⑲ Camera Back Selector |
| ② Barrier Filter Knob | ⑧ Upper Camera Back Mount | ⑭ Camera Vertical Adjustment Ring | ⑳ Timer Display |
| ③ Angle of View Selector Lever | ⑨ Lower Camera Back Mount | ⑮ Main Power Switch | ㉑ ALARM Display |
| ④ Focusing Knob | ⑩ External Fixation Device | ⑯ Viewing Illumination Level Control | ㉒ Camera Back Selection Indicator Lamp |
| ⑤ Internal Fixation Device Insertion Port | ⑪ Camera Base Locking Lever | ⑰ Flash Output Correction | |
| ⑥ Data Card Insertion Port | ⑫ Shutter Release Button | ⑱ Timer Switch | |

Optional Accessories:

Numerous optional accessories are available for the fx-50R to provide a wider range of retinal observations and photography, with enhanced convenience. Use of these accessories gives the fx-50R even greater versatility in performance.



Lower 35mm Back Adapter

This adapter allows the mounting of a 35mm camera back at the lower position. It is very convenient when the operator wants to use the upper back for fluorescein photography and the lower back for standard color film. The body can be programmed to automatically switch back and forth between the backs.

*A motor-driven 35mm back is also available.



Polaroid[®] Peel-Apart Film Back

This back is specially for use with a Polaroid back using peel-apart films. It is useful in fluorescein photography. The camera can be programmed for auto-switching mode.



Internal Fixation Device

For use with patients who are unable to fixate at the central position, or who have very weak vision, this also relatively simple fixation for reliable retinal photography.

Swing-Tilt Head

This provides tilt capability of 15° upward and 8.5° downward from the central axis. By releasing the knob with the right hand and turning the handle with the left, the camera back can be shifted up or down. This is particularly convenient for photographing peripheral regions, or when a patient is unable to move the eyeball freely.

Specifications:

Body

| | | | |
|------------------------------|--|-------|---------|
| Camera Length: | 420mm (max., at 0-D) | | |
| Operating Distance: | 38mm (subject eye to objective tube surface) 460mm max. (eye-to-eye, 50°) | | |
| Angle of View: | 50°, 35° manually selectable using lever on camera body | | |
| Magnification: | Angle | Photo | Monitor |
| | 50° | 2.0X | 12.3X |
| | 35° | 2.6X | 16.5X |
| Subject Eye range= +5 to +40 | Diopter Correction: Correction diopters (+20 normal range) Manually selectable using lever on camera body | | |
| Image Size: | 35mm=26mmφ × 22mm OVAL-frame Polaroid=75mmφ × 66mm OVAL-frame | | |
| Illumination: | 12V/50W Halogen lamp | | |
| Data Entry: | 5-digit code, only timer displayed | | |
| Photographic Filters: | Barrier filter knob selection system | | |
| Exposure Compensation: | 4-position turret with (W), (F), (G) & (R) selections; + / 0 / - rotary switching | | |
| Film Selections: | 35mm color ISO100 35mm monochrome ISO400 Polaroid color ISO600 Polaroid monochrome ISO3000 | | |

| | |
|-----------------------------------|--|
| Timer: | On/Off toggle switch operation, not linked to filter choice, etc. |
| Audible Warning: | Barrier filter insertion; Film supply exhaustion |
| Eyepiece Lens Diopter Correction: | -8 to +5 diopters |
| Operation Indicators: | 1-sec. interval audible indication: double 'beep' indicates 10-sec. interval |
| Dimensions/Weight | 158 × 420 × 301mm (w/d/h) 7kg |

Support & Power Supply

| | |
|----------------------------------|--|
| Table Adjustments: | Longitudinally: 80mm coarse, 20mm fine |
| Swingarm Adjustments: | Right and left: 120mm coarse, 20mm fine |
| Tilt Adjustments: | Horizontal angle to 15° and swing Angle of elevation to 8.5° |
| Dimensions/Weight (at max. tilt) | 358 × 510 × 531mm (w/d/h*) 26kg 358 × 510 × 561mm 29kg |

*when measured at fixation light column tip

* "Polaroid" is a registered trademark of Polaroid Corporation, U.S.A

* All specifications and external design are subject to modification of change without prior notice.

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