Kowa
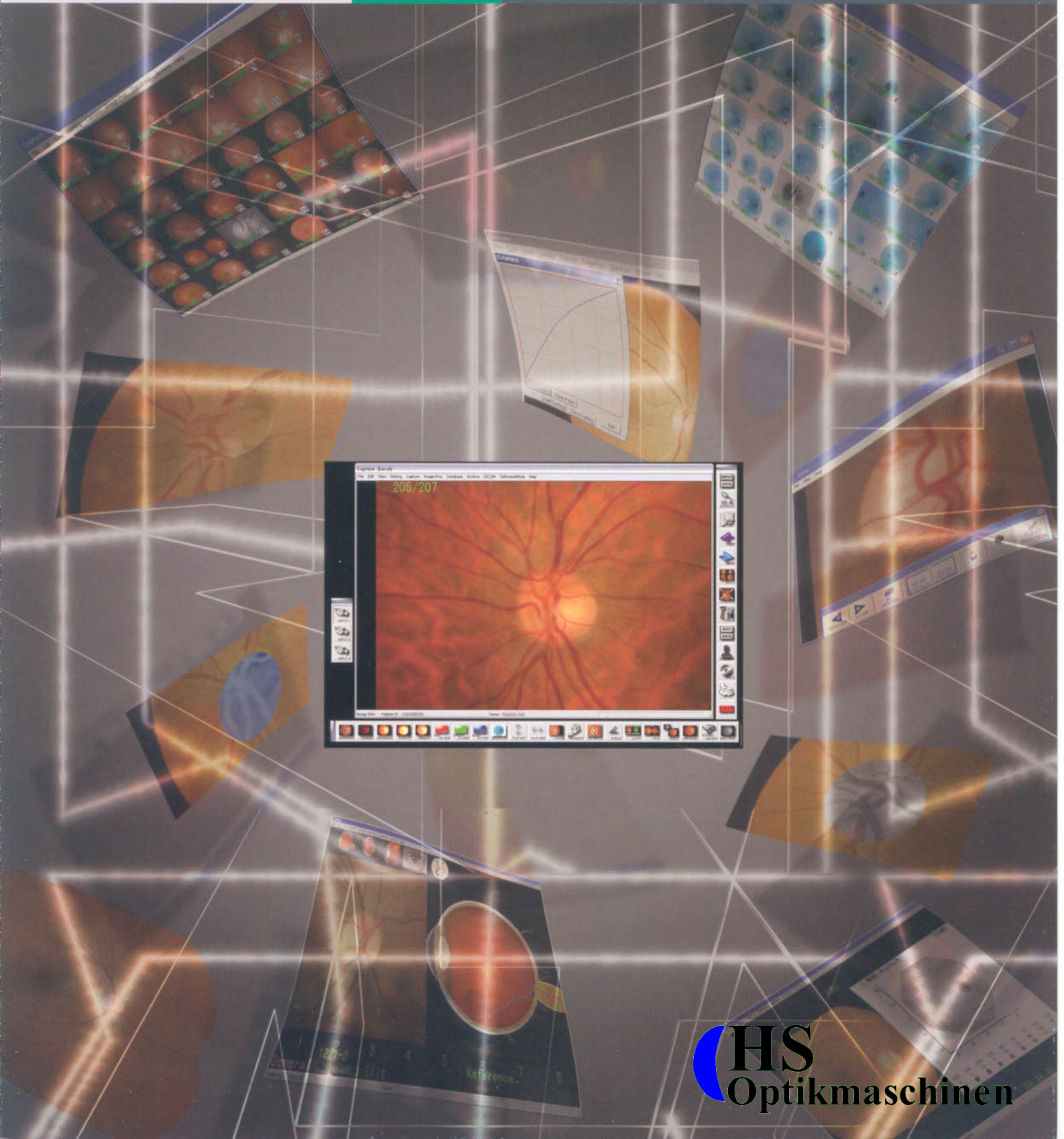
Technology for Life Science

High Performance Digital Imaging System
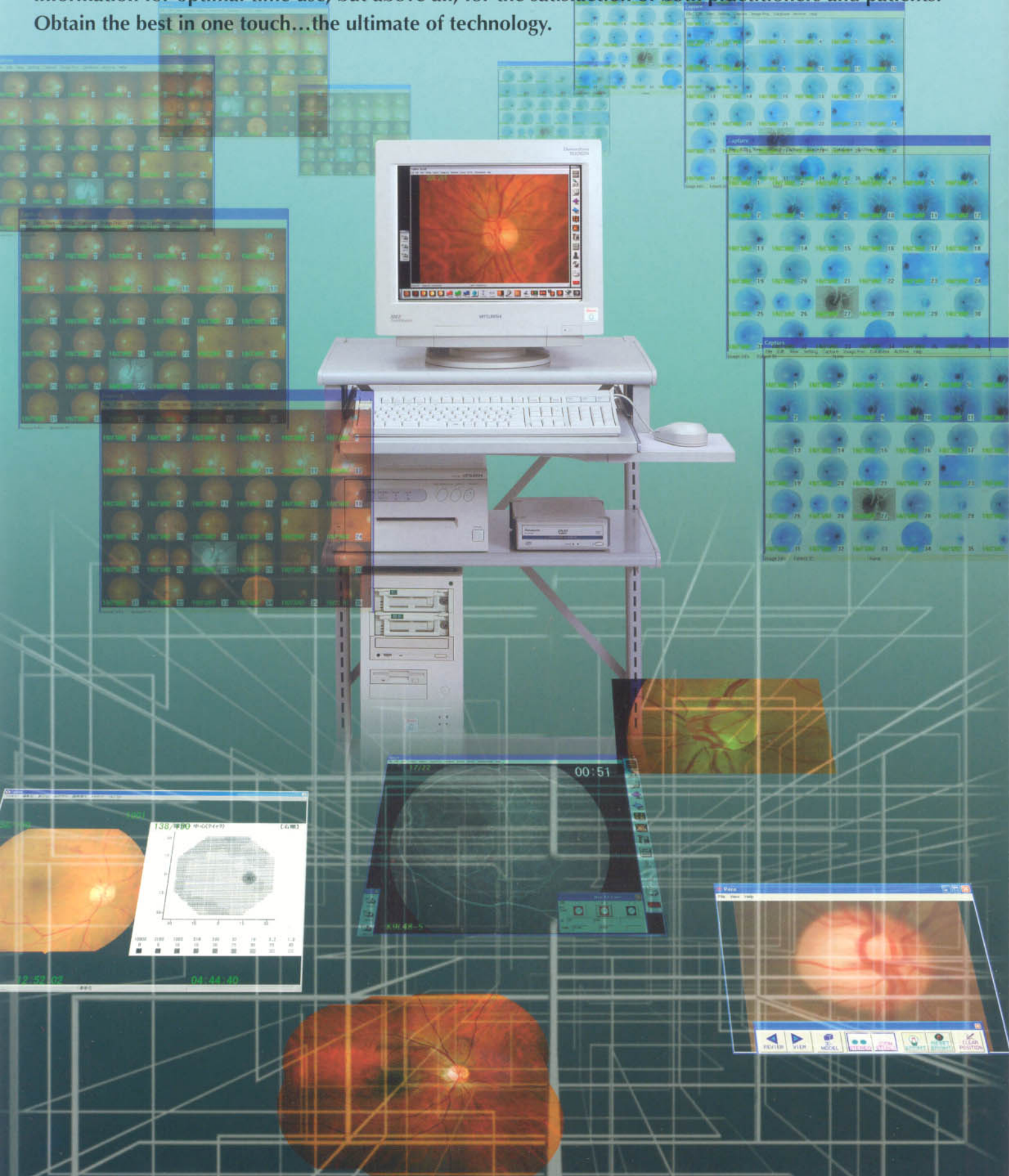
VK-2

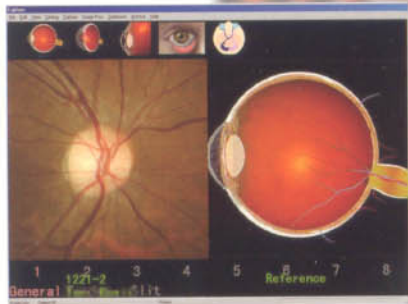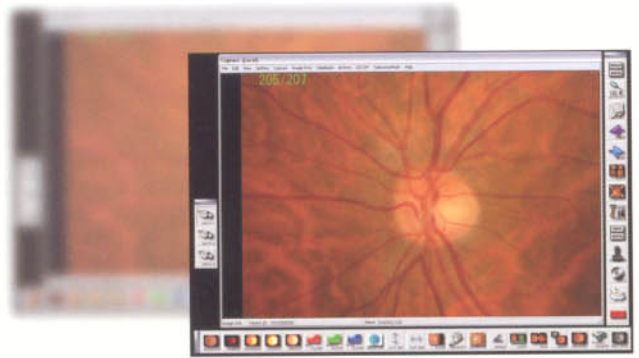## Kowa Ophthalmic Medical Imaging Technology

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Amazingly high-volume and highly diversified medical images are the elements the VK-2, Kowa Ophthalmic Medical Imaging Technology, has chosen, to design its masterpiece of high performance digital imaging system.

Simplifying all operations but providing high quality digital images, VK-2 systematizes the handling of all information for optimal time use, but above all, for the satisfaction of both practitioners and patients. Obtain the best in one touch…the ultimate of technology.

CAPTURING

Flexible and sophisticated, the Kowa VK-2 enables capturing of images from variable ophthalmic observation devices, with various applications like Multiple Timers and Link to Perimeter, to adapt any type of record. Supporting high-resolution digital cameras, the results are images taken in the best conditions, which care a lot about details. VK-2 amazingly simplifies operations based on the principles of automatic switching and 1-click selection.
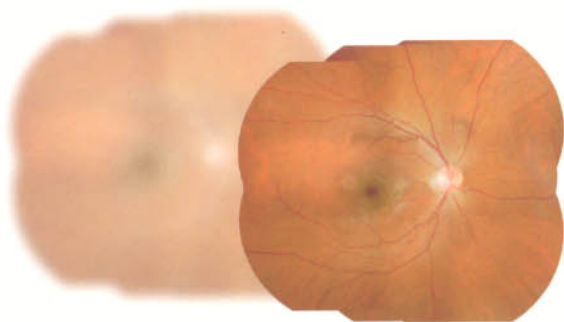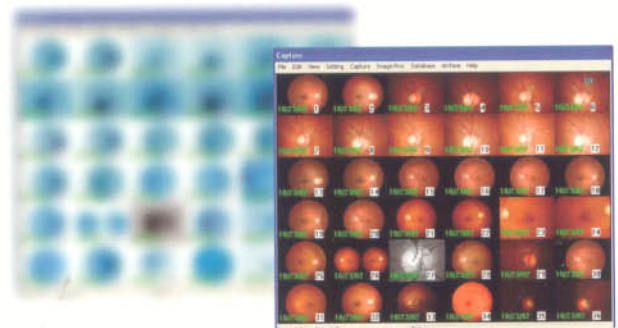
OBSERVING

Once captured, images can be adjusted and observed at will, with a set of functions, compiled in the Image Processing Toolbar on the display. From Sharpen Image to Measure Angle, Loop to Reference Image, VK-2 strongly supports fast and accurate diagnosis, together with informed consent through easy-understandable explanations in front of patients, witnesses of this systematization of rightness.

EXAMINING

Captured images, now part of the VK-2 database with many others, are easily found and displayed in various forms. According to practitioners' needs, VK-2 offers a wide selection of displaying criterion. Just showing the necessary information, VK-2 efficiently supports comfortable examination.

DEVELOPING

VK-2 avails various functions for developed examination like PDT Function or Stereo Viewer, Montage Function, Magnifying Glass and more, enabling the creation of a powerful database. VK-2 was designed to strongly support every examining operations, following the concept of "easily done, perfectly done".

SAVING & TRANSMITTING

Saving or adding to/from other folders or external medias, VK-2 helps handle an unlimited number of images, freely, quickly and easily. Furthermore, printing, e-mailing are also facilitated with images always accompanied with patients' information. VK-2 makes every operations quick but safe to the very end.
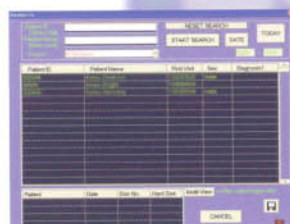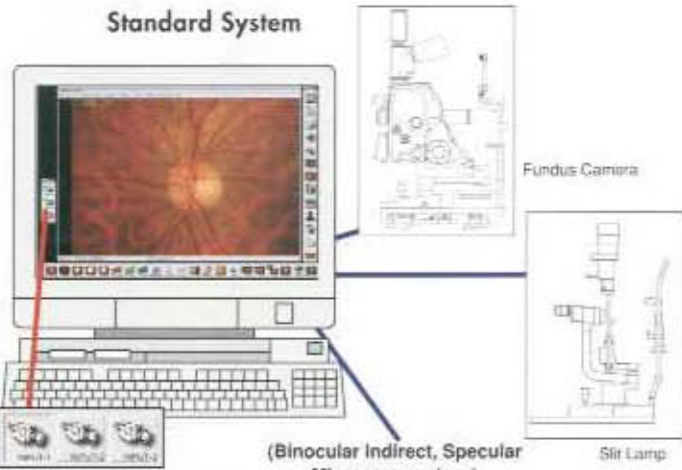
Image Capture
high specifications but simple operations

3 instruments inputs -1 imaging system

■ Choice of variable inputs: Y/C, VBS/RGB, composite or USB

■ Up to 3 different digital/video observation devices (1-click switch) ("portable VK-2" does not support 3 inputs).

Standard System

Fundus Camera

(Binocular Indirect, Specular Microscope, etc...)

Slit Lamp

Easy selection of video device with 1-click on the input button

■ **Electronic 30 degrees Image Capturing** (available for VX-10), enabling the saving of the macular 's image in 30° size.
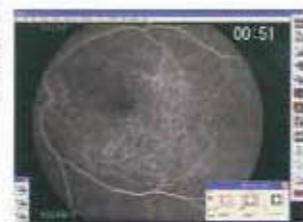
30°
50°

Easy selection with the 30-50 degrees button

VK-2 supports the latest high resolution cameras for best detailed images possible

Kowa KD-211C (1 chip CCD)   Kowa KD-630C (3 chips CCD)

■ 2.1 mega pixel digital color CCD camera, Kowa "KD-211C"

■ 2.1 mega pixel×3 (total 6.3 mega pixel) CCD digital color camera, Kowa "KD-630C"

■ 1.4 mega pixel B/W digital CCD camera, Kowa "KD-144i"

■ 3 CCD RGB color camera, "Sony®1 DXC series"

■ Specific Nikon®5 digital single lens reflex camera
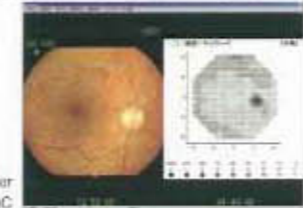
Sophisticated Image Capturing

■ **Automatic switching of FA and Color:** in ICG, FA mode, high speed capturing (1 frame/sec, depends on CCD camera), and timer is displayed on the monitor (linked to Kowa Fundus Cameras).

■ **Multiple Timers** (in FA mode) selectable for management of several patients ' timer counts.

Colors of "Clock" marks change to help you recognize active timer counts.

■ **Link to Perimeter:** this Kowa 's unique function allows total management of fundus images and perimetry results.

Optional Perimeter Application for AP-5000C

■ Stereo Assistant makes stereo images easy to obtain through simple instructions.
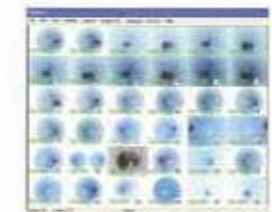
■ Variable mode set from the Trigger input.

Patient Observation
Line-up of the best tools for Informed Consent

Patient Education

■ Image comparisons enhanced with the **Square Function** (2 images) cropping images for better views.

■ **Historical progressions**

■ **Reference(Template) Image:** patient images can be compared with stored reference image

64 reference images can be stored (8 reference images per 8 reference categories)

■ **Fully equipped for informed consent**

Image Processing according to Diagnostic Needs

■ Simple click on Image **Processing Toolbar** for ideal image display (sharpen image, gamma process, enhance image, contrast, brightness, analysis with RGB filter, negative image, flip image, zoom, measure length, measure cupdisk rate, measure angle, loop, undo, original, reference (template) image).

Gamma Process: change the gamma curve on the image

Measure Cupdisk Rate: 2 methods (area, length)

■ **Translucent Toolbar:** the toolbar has a level of transparency to make the displayed image visible through it, to help better visibility of the display. The toolbar changes to full opacity (no transparency) when the mouse cursor overlaps (toolbar translucency and orientation are customizable).

Database system
designing imaging treasures

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Image Processing according to Analysis Needs

■ **Multiple Image Display:** easy analysis with 2, 4, 6, 9, 16, 36 images displayed at the same time.

Multiple image display

Display chance to a negative with just 1-click on the "NEGATIVE" button on the toolbar

■ **Database Display:** patient 's names, ID, information, associated records, current sessions, diagnosis, edit database and more, all can be administered and displayed through the simplest operations, just dedicated to optimized efficiency.
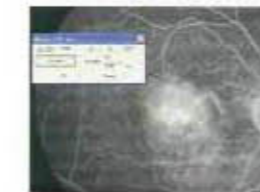

Display Multiple Patient Images

Extended Functions
Simplicity for perfection

■ **PDT area measurement:** based on patient 's eye information, this function powerfully supports accurate diagnosis.

Marking of "PDT" are (3 methods: "DIA","AREA","AUTO"selectable

■ **Stereo Viewer**, featuring Kowa 's unique moving 3D.

1-Click simple controls

■ **Magnifying Glass:** the mouse cursor changes into a customizable magnifying lens (when left mouse butto is pressed).

Normal lens   Blue filter   Negative filter

■ **Montage Function**, long awaited function for making panorama images, easy to use with simple operations.

■ **And more:** merge and subtract, noise reduction, histogram chart, analysis of gray level, auto enhance (multiple display), each enhance function, red free filter processing, edit data, input data, search data.

High capacity storage and archive
Unlimited data bank of your own

■ CD-R, DVD-RAM and removable hard disk easy archive

■ Support Twain32 image scanner

■ Selectively archive enabling savings of selected data to any media

Searching,Selecting,Saving

■ Direct copying of images to external disk drive

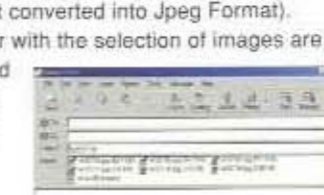■ Opening and addition in the VK-2 database of other image files(Jpeg, Bmp)

Special Functions
Always identifying every image

■ **E-mail function:** quick and easy sending by e-mail (Outlook Express) of selected images (Delta Format converted into Jpeg Format). Furthermore, together with the selection of images are automatically attached "inf.txt" files referring to the corresponding patients' information.

■ **Header and Footer for Printing** to facilitate documentary handling

■ **Direct image printout**

Specifications

VK-2 SOFTWARE APPLICATIONS

IMAGE INPUT	Y/C · VBS · Composite · USB
IMAGE PROCESSING	· Basic Processing with one click (sharpen image, gamma process, enhance image, contrast, brightness, analysis with RGB filter, negative image, flip image, zoom, measure length, measure cupdisk rate, measure angle, loop, undo, original, reference (template) image · Multiple Images · Open and add additional image file formats JPEG, BMP to VK-2 database
VARIABLE MODE SETS	· Variable mode set from the Trigger Input · ICG, FA mode 1 second B/W Capture with timer on the display linked to Kowa Fundus Camera
SUPPORTED CAMERAS	· 3 CCD RGB color camera (Sony [1] DXC series) · Specific Nikon[5] digital SLR camera · Kowa digital color camera KD-211C/KD-630C (capture speed approximately 1 second) · Kowa digital B/W camera KD-144i
VARIABLE ARCHIVE METHODS	· Store the image after image processing · Support archive (CD-R, DVD-RAM and removable hard disk), easy archiving · Direct copying of images to external disk drives
EASY OPERATIONS	· Direct start up · Direct image printout · Support for Twain32 Image Scanner

HARDWARE SYSTEM REQUIREMENTS

CPU	Pentium[2]III 800MHz or higher (Celeron 1GHz or higher required to run system)
MEMORY	512Mbytes of RAM required for digital camera (KD-211C, KD-630C (capture speed approximately 1 second), Sony[1] DXC series, Nikon[5] digital SLR camera)
DISK	2 Hard disks (C: drive for system, D: drive for data (image & database)) (Separate System and Data drives to ensure image security in the event of catastrophic operating system failure)
VIDEO CARD	XGA card, more than 4Mbytes memory (1024×768, 24 or 32 bit)
POWER SUPPLY	250W (300W or higher required for digital camera capturing)
USB PORT	One USB-port indispensable to VK-2 system
FAN	12V/0.1A or higher required for digital camera capturing
MONITOR	17inch flat screen monitor
ARCHIVE DRIVE	E-IDE type CD-R drive (supported by Adaptec Direct CD[3]) or DVD-RAM, DVD-R, DVD-RW drive, removable hard disk
OS	Windows® [4]XP
OPEN P.C.I. BUS SLOT FOR:	Video capture board×1, digital capture board for KD-211C (or KD-630C)×2, IEEE 1394 for KD-144i×1

ADDITIONAL ITEMS OR SERVICES REQUIRED TO USE CERTAIN FEATURES

· 100Base-T Network Card (for network connection)
· UPS (Uninterruptible Power Supplies)

[1] Sony is a Trademark of Sony Corp.
[2] Pentium is a Trademark of Intel Corporation.
[3] Adaptec Direct CD is a Trade Mark of ADAPTEC INC.
[4] Windows is a Trademark of Microsoft Corporation.
[5] Nikon is a Trademark of Nikon Corporation.
All specifications of both software and hardware are subject to change without prior notice.

(HS Optikmaschinen

Handwerkerstraße 14
48720 Rosendahl-Holtwick
Tel: 02566/4720
Fax: 02566/1620
Email: hsoptikmaschinen@hotmail.com
www.hs-optikmaschinen.de