

Ikegami

MKC-500HD

3CMOS FULL HDTV
Medical Grade Camera High-end model

HD
High Definition

1920 X 1080

**The best quality of Full HDTV
camera for the medical application**



The newly developed image processing capability achieves to express the more details and deeper focal depth compared to conventional cameras. Ikegami MKC-500HD is the most suitable camera for the low illumination surgery and fluorescence imaging with Full HDTV image quality.

- Resolutions : 1000 TV lines Horizontal Resolution, 54dB High S/N Ratio
- High sensitivity : 2000 lx/F12

As natural as possible

Full (1920x1080) HDTV
Internal signal processing of full HDTV Input with full HDTV Output. Various HDTV outputs are available, namely, 720p, 1080i and 1080p.

1000 TV lines Horizontal Resolution
The latest 2 Mega pixels 1/3" CMOS sensors are employed to achieve the high resolution as HDTV images.

High Sensitivity
The sensitivity is approximately 40% higher than the standard model and it can perform better even at the low illumination surgery.

54dB High S/N Ratio
Optimised signal processing circuitry achieves a high Signal-to-Noise Ratio of 54dB.

Digital Processing
Video signal processing is done in the same signal process ASIC as Ikegamis' HDTV broadcast cameras to constantly achieve the same high level of quality and reliability.

Image Processing Capability
Ikegami has newly developed the image processing capability to express the more details and deeper focal depth compared to conventional cameras.

Ultra Compact Camera-head
The new optics for 3CMOS sensors is designed and the lens mount is C mount.



Actual size

A variety of functions for the best image quality

Automatic Iris Control
Accurate iris control is possible with auto-iris camera adaptors and Auto-iris lenses.

Automatic Electronic Shutter System (Shutter Iris)
Electronic shutter (Shutter Iris) functionality to maintain the optimized performance in a variety of situations.

Auto Gain Control
The gain can be adjusted automatically to the proper brightness when the brightness is not enough.

Slow Shutter (Signal Accumulation) Function
The slow shutter function can be useful at the low light application such as fluorescence.

Video Level Indicator
Level Indicator is provided on the front panel of CCU (camera control unit) for ease of operation.

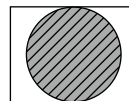


Skin Detail Enhancer
Fine control of human image colour detail is provided as standard to reproduce fine true to life skin tone.

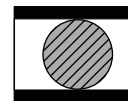


DVI-D Output
The camera can output at 1920x1080i/p 50/59.94Hz and 1280x720p 50/59.94Hz. This enables the camera to be used with external High Quality displays and PC monitors.

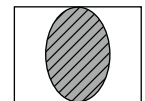
Standard Output of SDTV (NTSC/PAL) Down-converted Video
The camera has an internal down-converter to output SDTV. Composite signal and S-VIDEO outputs are provided as standard. It can be used for the integration with existing equipment such as DVD recorders.



side cut



letter box



squeeze



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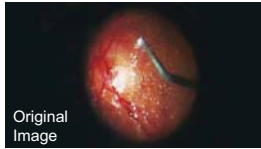


Advanced Function to help operations

Flip and Turn Function

Digital capture means that captured images can be flipped horizontally and vertically. Allowing for correction of image inversion from the optics used.

An optional foot pedal is required to allow an external operation of this function.



Scene File

4 scene files are provided to keep pre-set memories for functions and controls.

Save and Load Function of Scene File

The set scene files can be saved into and loaded from the USB memory. When the camera setting is changed, it can be easily set back to the original settings.



Picture Freeze

Pressing the Freeze button on the CCU panel will hold the current image. This allows the detailed inspection of situations where the motion could hide the details.

This facility can also be synchronised with an external trigger for use in strobe applications.



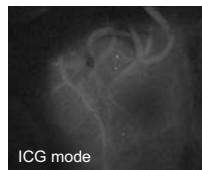
Suitable to the advanced surgery with the fluorescence application

Fluorescein Mode

The fluorescein mode is available for the fluorescein imaging.
* The combination with surgery microscopes for fluorescence optics is necessary for the fluorescein imaging.

ICG Mode

The ICG mode is available for ICG imaging for NIR range.
* The combination with surgery microscopes for fluorescence optics is necessary for the ICG imaging.
* The camera should equip the exclusive optics as a factory option and need the combination with CVA-300R microscope adaptor.
* The visualization level should depend on the environment such as illumination, dye quantity, reaction with cells and so on.



A variety of useful features

User Friendly Operation

The camera-head and CCU (camera control unit) are separated for the user friendly operation. The adjustment of the image and the settings of the functions can be operated at CCU even during the surgery not to disturb surgeons.

Camera Cable

The cable connecting the camera-head and CCU(camera control unit) is available with 5m and 10m single and 5+10m combination cable.

Still Image Capture

Still images (up to 1920x1080) can be captured and saved to the USB memory (JPEG or BMP). Controllable from external inputs such as a foot pedal.



Remote Control Functions

It can be used with external triggers such as the optional foot pedal, and programmed to control Image Flip/Turn, Still Image Capture, or Scene Files.

User Friendly Operation as Ikegami MKC Camera Series

The front panel and setting menu are followed commonly to Ikegami MKC camera series.

Conformity to Safety Regulation and EMC Requirement for Medical Use

Medical Grade Safety Approval: UL60601-1, CSA C22.2No.601.1, EN60601-1
EMC Approval: FCC Class A VCCI Class A

Anti-biotic Coating

The camera-head and CCU (camera control unit) utilises an anti-biotic coating to help to improve infection control.



Optional Accessories

Camera Cable

5m single, 10m single and 5+10m combination camera cable



Microscope Adaptor

CVA-300RI

C-mount adaptor for a surgery microscope with the high quality optical lens for HDTV imaging.



Dual Foot Pedal

Functions like Still Image Capture, Scene File, Flip and Turn Function can be assigned to this unit.



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Rating

Optics	RGB prism method		
Scanning System	1920x1080, 50/59.94 frames, Progressive		
Image Pickup Device	1/3-inch CMOS x 3		
Effective Pixels	1920(H) X 1080(V)		
Lens Mount	C-Mount		
Camera Output	2:1 Interace 1080 lines 50/59.94 Fields or Progressive 720 lines 50/59.94 Frames		
Aspect Ratio	H16:V9		
Output Signal	HDTV	HD-SDI	BNC 2 ch
		DVI (1920x1080i/p)	1 ch
		Analogue Y,Pb,Pr/RGB D-Sub	1 ch
	SDTV (Down Convert)	Composite (VBS)	BNC 1 ch
		S-VIDEO	4P S-Terminal 1 ch
	RGB/Y,Cb,Cr	D-Sub 1 ch	
External Synchronization	Tri-level Sync 0.6Vp-p/75Ω or BBS:0.3Vp-p		
Remote Control	4 points 1 line D-SUB 9 pin (female) Freeze, Save, Scene file and Flip functions are chosen optically.		
USB Interface	USB 2.0 2 lines (Front/Rear) for Still Picture Capture		
Electric Shutter Speed	OFF, 1/50 or 1/60 to 1/10000		
Camera Cable	5m single, 10m single and 5+10m combination camera cable		
Dimensions/Weight	Camera Head:W34 x H40 x D40mm / 100g or less CCU:W210 x H83 x D300mm / 3000g or less		
Power Requirement	AC100V - 240V ±10% (50Hz/60Hz)		

Performance

Resolutions	Horizontal: 1000 TV lines (1080i 50 or 59.94Hz)
S/N Ratio	54dB (Gamma/Detail off, Y signal)
Sensitivity	F12 at 2000lx/3200°K or better
Registration Error	Within 0.05% of on full screen

Function

Auto Functions	Auto White Balance Auto Iris Control (DC Iris) Auto Gain Control Auto White Shading Auto Shutter Iris
Skin Detail Enhancement	ON/OFF, and level adjustable
Slow Shutter	Up to 1/4 seconds slow shutter speed available
Paint	R-channel / B-channel (Level adjustable)
AE Level	Exposure level adjustment
Video Level Indicator	Built-in, Seven (7) steps
Color Bar	Built-in
Photometry Area	Selectable in Menu
Image Flip and Turn	Image Flip and Turn available
HV Centering Function	The position of the output images can be adjusted in the horizontal (H) and vertical (V) position.
Scene File	4 scene files The scene file data can be saved into and loaded from an USB memory.
Picture Freeze	Pressing the Freeze button on the CCU panel holds the current image.
Still Image Capture	Still images (up to 1920x1080) can be captured and saved to the USB memory (JPEG or BMP).
ICG Mode	ICG fluorescence mode available ※ The camera should equip the exclusive optics as a factory option and need the combination with CVA-300R microscope adaptor.
Fluorescein Mode	Fluorescein mode available

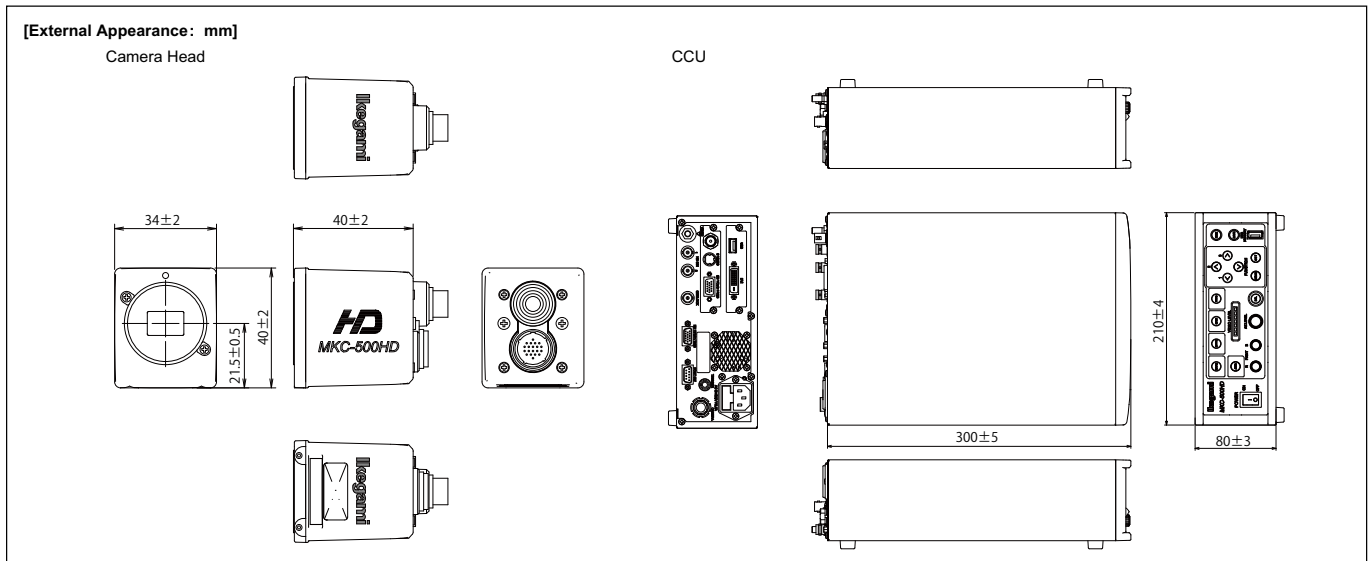
※ The combination with surgery microscopes for fluorescence optics is necessary for the ICG and fluorecein imaging.

Standard Accessories

AC Power Cable, Operation manual

Optional Accessories

5m single, 10m single and extension 10m cable available



Design and specifications are subject to change without notice.

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