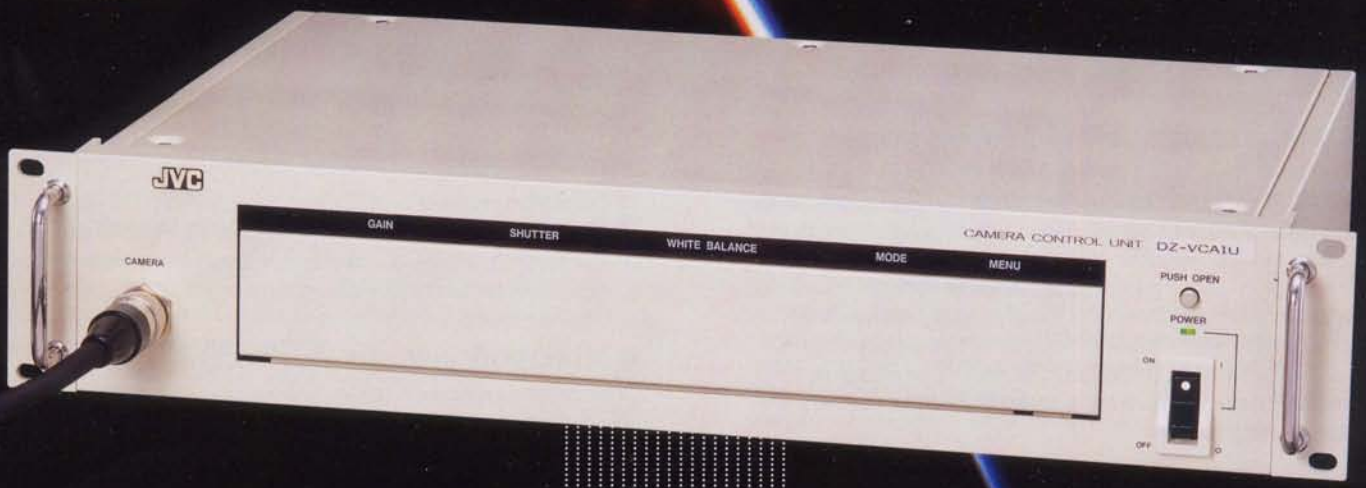
JVC
PROFESSIONAL

1/3" 4-CCD Micro
HD Camera

DZ-VCA1U

Medical UL2601-1 approved



Developed exclusively for medical applications, the world's smallest and lightest separate type high-definition camera brings versatile, high-resolution imaging performance to endoscopic and microscopic procedures.

*The cable shown in this photo is optional.

Super high resolution performance in an ultra-small, ultra-light camera ideal for medical applications

The perfect solution for image-critical medical applications, the DZ-VCA1U is the world's smallest and lightest micro HD (High Definition) camera. Incorporating a newly developed Dual-Green 4-CCD system, this powerful camera can capture incredibly detailed, true-to-life images with horizontal resolution of more than 800 TV lines and vertical resolution of more than 650 TV lines.
Its high-resolution images and 4:3 aspect ratio complement your existing medical imaging systems, increasing the potential for minimally invasive procedures.

Features

■ Compact, lightweight design

The incorporation of 1/3-inch CCDs has made it possible to reduce the DZ-VCA1U's camera head to about one-third the size and one-sixth the weight of a conventional camera. Weighing a mere 8.1 oz. (230 g), this ultra-compact HD camera measures 2-3/8" (W) x 2-3/16" (H) x 3-1/8" (D) (59 x 70 x 79 mm).
The CCU (camera control unit) can be mounted in a standard EIA 19-inch rack (2-unit size).

■ High resolution with 4:3 aspect ratio

The newly developed dual-green 4-CCD system features four NTSC 1/3-inch CCDs (two for Green and one each for Red and Blue) with a total of more than 1.6 million pixels. Combined with precision digital signal processing, this enables the camera to produce extremely high horizontal resolution of more than 800 TV lines and vertical resolution of more than 650 TV lines (roughly twice that of conventional NTSC pictures). **To meet the imaging requirements of medical applications, the camera's aspect ratio is 4:3.**

■ System configuration

The DZ-VCA1U produces HDTV studio standard (compliant with ITV-R Rec. 709) sync signals. These can be recorded and played back with their original quality on an HDTV-compatible video recorder such as a W-VHS VCR. High-resolution DZ-VCA1U images can be displayed in realtime on most multi-scan computer monitors, making it easy to configure a cost-effective, high-definition imaging system.

■ Automatic sensitivity control

An automatic sensitivity control using ALC and a combination of ALC and electronic iris (ALC + EEI) allows trouble-free shooting under lighting conditions ranging from low to high intensity.

■ Electronic shutter function

The electronic shutter's range of 1/2000 to 1/30 sec. can vary the quantity of light.

■ Flicker-free mode

Greatly reduces the flickering caused by shooting under a fluorescent lamp in locations using 50-Hz cycles.

■ Color bar generator

A full color bar generator is built in for easy system adjustment.

■ Switchable positive/negative signal

Signals can be inverted with a switch. Useful for converting negative film images to positive pictures.

■ Automatic internal/external sync switching

Useful for multi-camera video processing and operation in combination with other systems.

■ 2H contour provided as standard

Contour compensation is performed both horizontally and vertically to assure sharp, clear pictures.

■ SCSI interface

When the optional SCSI board is installed, high-definition pictures can be easily captured on a personal computer. The captured images can be analyzed, processed, or printed.

Advantages of the new dual-green system

- Suppresses resolution degradation caused by magnifying chromatic aberration, enhancing the uniformity of the resolution across the entire image.
- Overall dynamic range is improved by using 2 CCDs for green (G1 and G2).
- To obtain data for interlace operation, the B and R CCDs are shifted vertically by 1/2 pixel against G, increasing the vertical resolution.

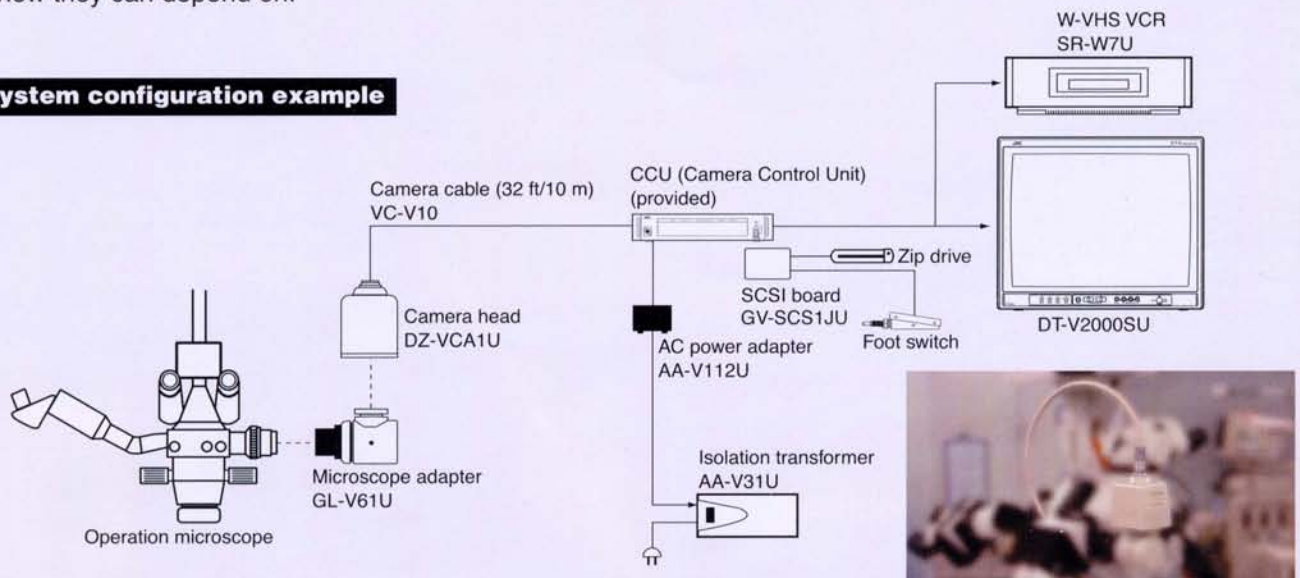
A wide range of medical applications

Supporting microsurgery with wide view and high-definition picture

Operation microscope

High-resolution images and accurate color reproduction are essential to the highly precise art of microsurgery. The DZ-VCA1U faithfully reproduces the image captured by an operation microscope, providing surgeons with a view they can depend on.

System configuration example



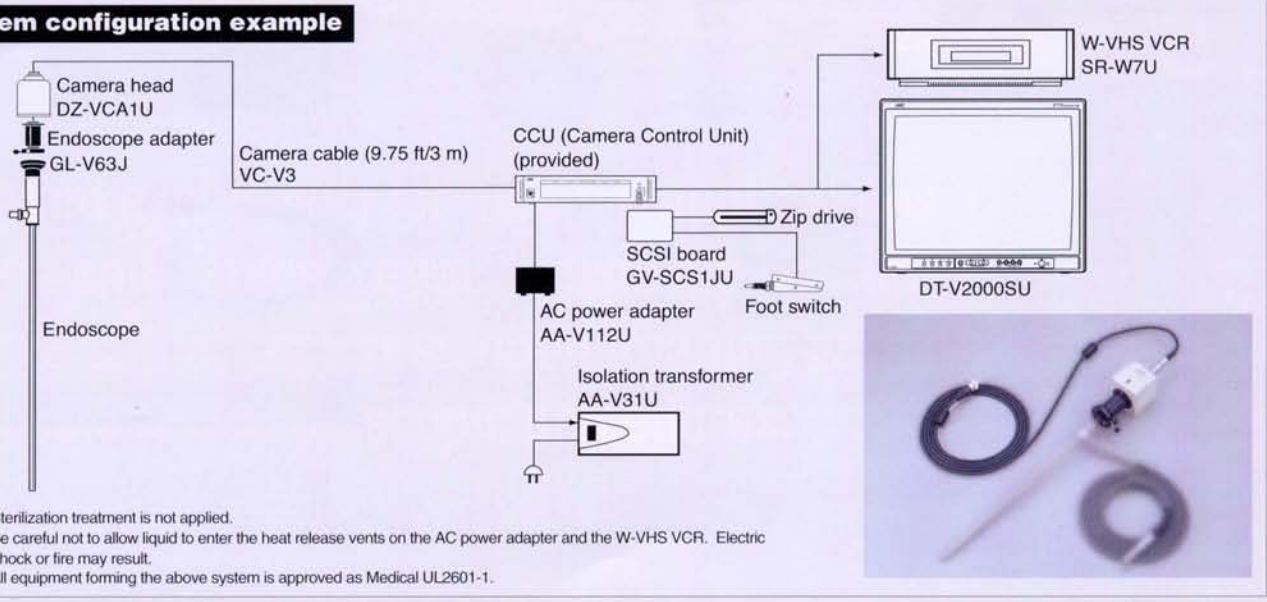
Notes: • Sterilization treatment is not applied.
• All equipment forming the above system is approved as Medical UL2601-1.

High picture quality maximizes the potential of endoscopic surgery

Endoscope

The performance of endoscopes is fast improving, enabling increasingly high-quality imaging of sites inside the body. With the DZ-VCA1U, you'll be able to maximize the quality of the endoscopic image, reproducing tiny, previously invisible details on a connected monitor. As it serves as the operator's eyes, this camera makes procedures much easier.

System configuration example



Notes: • Sterilization treatment is not applied.
• Be careful not to allow liquid to enter the heat release vents on the AC power adapter and the W-VHS VCR. Electric shock or fire may result.
• All equipment forming the above system is approved as Medical UL2601-1.

High-resolution monitoring of operation procedures with astral lamps

Operation field recording

Operation procedures can be recorded in high resolution and the resulting images transferred to a medical office, nurse station or classroom for analysis or training.

System configuration example

Camera cable (32 ft/10 m)
VC-V10

CCU (Camera Control Unit)
(provided)

W-VHS VCR
SR-W7U

DT-V2000SU

AC power adapter
AA-V112U

Isolation transformer
AA-V31U

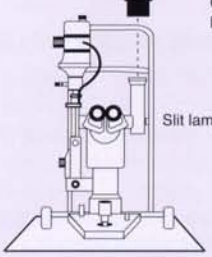
Notes: • Sterilization treatment is not applied.
• All equipment forming the above system is approved as Medical UL2601-1.

Precise color reproduction and compact design ideal for ophthalmic inspection

Slit lamp

Operation of the slit lamp microscope commonly used for ophthalmic inspection can easily be disturbed by camera heads that are not compact enough. At the same time, however, extremely precise color reproduction and fine adjustment of light quantity are required. The DZ-VCA1U is both compact enough to allow unimpeded microscope operation and powerful enough to deliver the color accuracy needed for reliable inspection.

System configuration example



Camera cable (32 ft/10 m)
VC-V10

CCU (Camera Control Unit)
(provided)

W-VHS VCR
SR-W7U

Zip drive

SCSI board
GV-SCS1JU

Foot switch

DT-V2000SU

AC power adapter
AA-V112U

Isolation transformer
AA-V31U

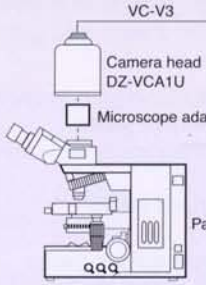
Notes: • Sterilization treatment is not applied.
• All equipment forming the above system is approved as Medical UL2601-1.

Accurate reproduction of color samples

Pathology microscope

Until now, cameras used in conjunction with pathology microscopes — even 3-CCD cameras — have been unable to accurately reproduce images of samples with slight variations in color. With its HD linear color reproduction, the DZ-VCA1U is able to meet the high standards of color reproduction required in pathology, producing an image on the monitor almost identical to that seen through the microscope.

System configuration example



Camera cable (9.75 ft/3 m)
VC-V3

CCU (Camera Control Unit) (provided)

W-VHS VCR
SR-W7U

Zip drive

SCSI board
GV-SCS1JU

Foot switch

DT-V2000SU

AC power adapter
AA-V112U

Isolation transformer
AA-V31U

Notes: • Sterilization treatment is not applied.
• All equipment forming the above system is approved as Medical UL2601-1.

Major controls, indicators and connectors

Camera head

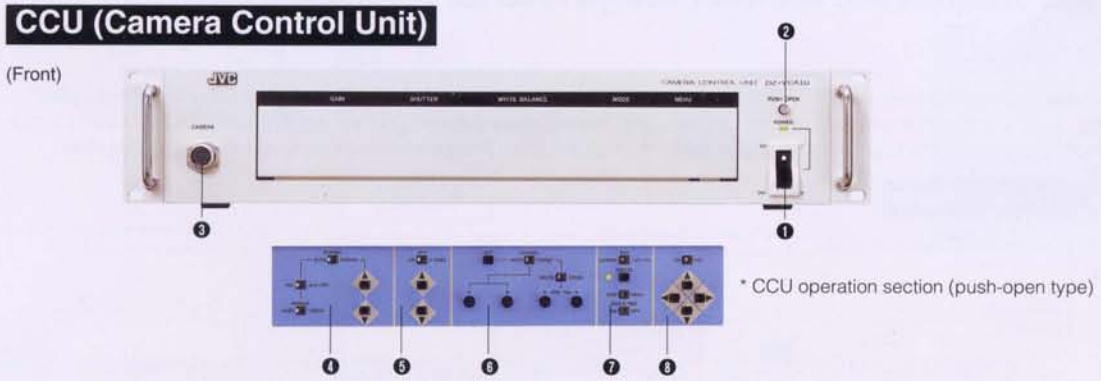
❶ Lens mount ring

- A special C mount with a longer flange back length of 1-1/8" (28.0 mm) is used.
  The flange back length of an ordinary C mount conversion lens is 3/4" (17.526 mm).
- To install a 1/2-inch bayonet mount conversion lens, use the optional 1/2-inch bayonet mount conversion adapter (GL-V62U).

❷ Camera cable connector

Connect the camera control unit with the optional camera cable.

CCU (Camera Control Unit)



* CCU operation section (push-open type)

❶ [POWER] power switch and power indication LED

❷ [PUSH OPEN] door button

Press to open the function box.

❸ [CAMERA] camera cable connector

Connect to the camera head using the provided camera cable.

❹ Gain control section

Set for automatic or manual gain adjustment. The automatic setting combines gain and shutter.

❺ Shutter control section

Set the shutter speed of the electronic shutter. When [ALC+EEI] is set in the gain control section, shutter setting is disabled.

❻ White balance control section

Adjust the white balance automatically or manually. Perform fine adjustment for red or blue.

❼ Mode control section

Select the signal output to the monitor from camera, color bar or 100% white. Also, switch between negative and positive or select whether or not the date and time are displayed.

❽ Menu control section

Display the on-screen setup menu.

(Rear)

❶ [DC INPUT] DC input connector

Input DC 12 V from the optional AC power adapter.

❷ Cover for extension slot

Remove the cover to install an optional device in this slot.

❸ [GENLOCK INPUT] external sync signal input jack

Reference signal input jack used to synchronize the camera video output signal with other equipment such as an HD camera and switcher.

❹ [SYNC OUT] sync signal output jacks

Output 3 types of sync signals (HD (horizontal drive signal)/VD (vertical drive signal)/C. SYNC).

❺ [RGB OUT] RGB signal output jacks

Output RGB signals.

❻ [Y, PB, PR OUT] video signal output jacks

Output HD standard video signals.

SPECIFICATIONS

Camera head section

Image sensing device:	1/3-inch IT-CCD (410,000 pixels)
Shooting system:	New dual-green 4-CCD system
Lens mount:	Special mount (C mount form, flange back: 1-1/8" / 28.0 mm)
Camera output:	19-pin connector
Dimensions:	Camera head; 2-3/8" (W) x 2-13/16" (H) x 3-1/8" (D) (59 x 70 x 79 mm)
Weight:	Camera head; 0.51 lbs. (230 g)

* The mount format is the same as that of a regular C-mount, except that the flange-focal distance (1-1/8" / 28.0 mm) is longer than that of the standard C-mount. To use a standard 1/2" bayonet mount, an adapter is required.

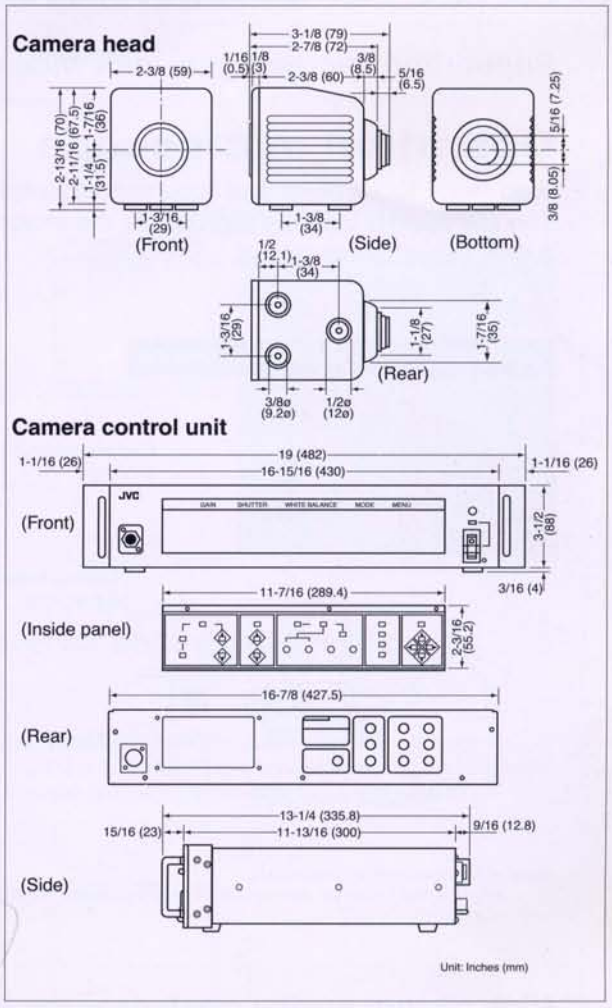
CCU connectors

Camera input:	20-pin connector
Image signal output:	Y, Pb, Pr BNC x 3 (75 ohms) RGB BNC x 3 (75 ohms)
Sync signal output:	HD; BNC x 1 (TTL) VD, BNC x 1 (TTL) C. SYNC; BNC x 1 (±0.3 Vp-p, compliant with HDTV standard ITU-R Rec. 709)
External sync. signal input:	Y (1.0 Vp-p, 75 ohms) or C. SYNC (±0.3 Vp-p, 75 ohms), BNC x 1 (75 ohms)
Power supply input:	DC-IN XLR 4-pin

CCU

Number of scanning lines:	1125 (980 effective)
Scanning system:	2:1 interlace
Scanning frequency:	33.75 kHz (horizontal), 60 Hz (vertical)
Aspect ratio:	4:3
Horizontal resolution (center):	More than 800 TV lines (Y signal/standard)
Vertical resolution (center):	More than 650 TV lines (Y signal/standard)
S/N:	52 dB
Sensitivity:	F5.6, 2000 lx
Minimum illumination:	10 lx (F1.6 + 12 dB, 1/30 shutter, 50% level)
Color temperature correction:	One-touch auto-white, manual (RB variable), preset (3,200K/5,600K)
Sensitivity switching:	-3 dB — +12 dB (variable in 1 dB steps)
Electronic shutter speed:	1/30s, 1/60s (normal), 1/100s (flicker-free), 1/175s, 1/250s, 1/375s, 1/500s, 1/1000s, 1/2000s
Date indication:	Menu system 1) Year, month, day 2) Day, month, year 3) Month, day, year
Time indication:	Menu system, hour: minute: second
Sensitivity control:	ALC, ALC+Electronic Iris
Power supply:	DC 12 V, 1.3 A XLR 4-pin (use the optional AC power adapter)
Power consumption:	18 W
Operating temperature:	41°F to 95°F (+5°C to +35°C)
Dimensions:	16-15/16" (W) x 3-11/16" (H) x 12-11/16" (D) (430 x 93 x 322 mm) (excluding the handles for rack mounting)
Weight:	10.8 lbs. (4.9 kg)
Accessories:	Handle set x 1 Instruction manual x1

DIMENSIONS



Optional accessories

W-VHS VCR
SR-W7U

20" DTV monitor
DT-V2000SU

Isolation transformer
AA-V31U

AC power adapter
AA-V112U

250 MB Zip drive
Z250S (Iomega Corporation)

Mobile video cart
Spartan 190 (medi-mech)

Microscope adapter
GL-V61U

1/2-inch bayonet conversion adapter
GL-V62U

Endoscope adapter
GL-V63J

Foot switch
FSW-1

SCSI board
GV-SCS1JU

SCSI cable (commercially available)

9.75 ft (3 m) camera cable
VC-V3

32 ft (10 m) camera cable
VC-V10

● All equipment forming the above system is approved as Medical UL2601-1.

Design and specifications subject to change without notice.

JVC® DISTRIBUTED BY

JVC is officially accredited for its Quality Systems (ISO9001) and Environmental Management Systems (ISO14001).

Certificate No.FM21164

JVC PROFESSIONAL PRODUCTS COMPANY
DIVISION OF JVC AMERICAS CORP.
1700 Valley Road, Wayne, N.J. 07470
TEL: 973-315-5000, 1-800-526-5308 FAX: 973-315-5030

JVC CANADA INC.
21 Finchdene Square, Scarborough Ontario M1X 1A7
TEL: 416-293-1311 FAX: 416-293-8208

http://www.jvcpro.com

Printed in Japan
MZU-4007