HITACHI

These products are manufactured at afactory which has received quarity control system ceritication in accordance with the ISO international standards.

CERTIFICATE No.
JMI-0062
ISO 9001-1994
BS EN ISO 9001:1994
EN-ISO 9001-1994
JIS Z9901-1994

Multi-purpose/Compact/High Performance

HV-D15

DIGITAL

3CCD

The single-chip digital VLSI provides both video processing and video encoder.

3-CCD color camera featuring high quality picture and high stability

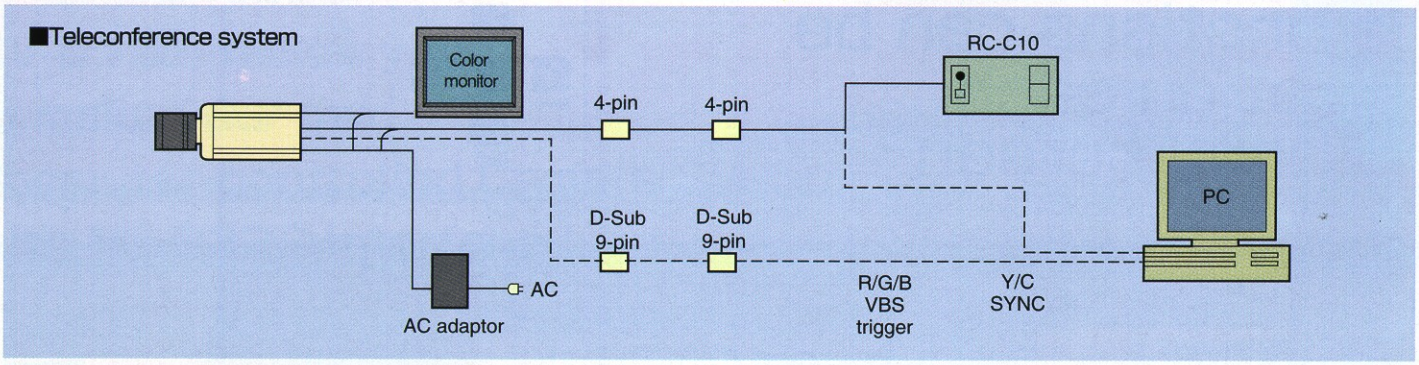
HV-D15

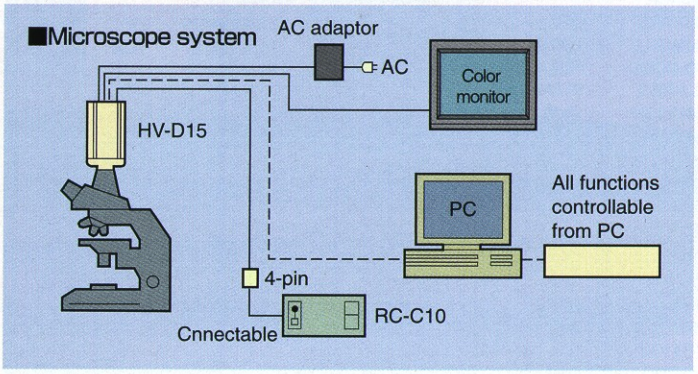
Hitachi's unique 13-bit digital VLSI provides higher quality video processing than analog. This single-chip DSP incorporates multiple functions all accomplished with digital precision for optimum picture reproduction. The HV-D15 is ideal for a wide range of difficult applications. The micro-processor allows remote control of the auto functions as well as the standard control functions to improve picture quality even in the most difficult of shooting situations.

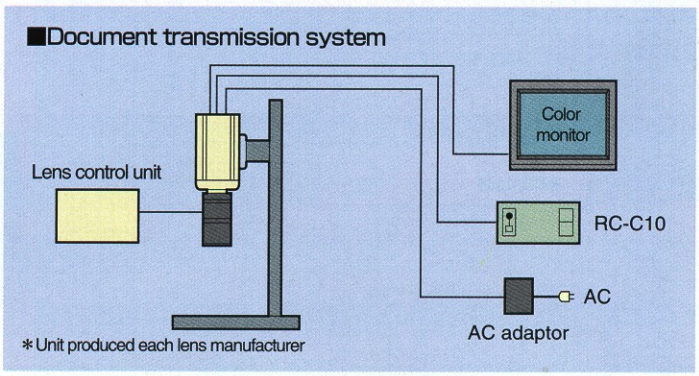
HV-D15 enables you to make your own Computer-controlled Camera System with RS-232C interface !

Multiple cameras can be controlled from a PC.

System configuration

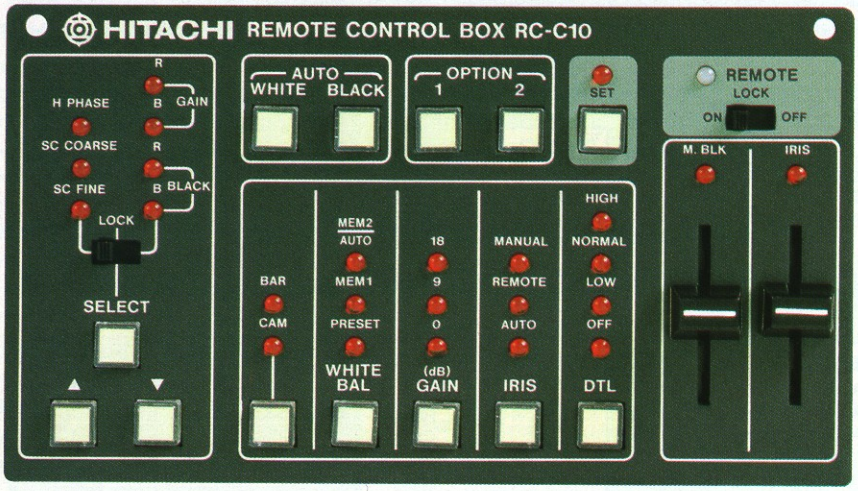






Accessories

Remote control box, RC-C10



Major specifications

Serial data output:
1.5Vp-p

Maximum cable length:
200m (cable equiv. to HC-592)

Power supply:
9 to 15VDC (supplied from camera)

Ambient temperature:
5 to 40℃

Power consumption:
0.5W approx.

Dimensions and mass:
140 (W) x80 (H) x40 (D), 0.5kg approx.

Pin connector

AUX connector
HR 10A 10R 12PB

Pin No.	Signal name
1	GND
2	NC
3	ZOOM
4	FOCUS
5	GND
6	HD IN
7	VD IN
8	PAN
9	TILT
10	GND
11	NC
12	GND

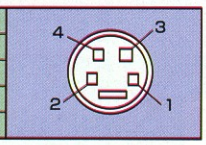
LENS Connector
HR 10A 10R 12SB

Pin No	Signal name
1	NC
2	NC
3	GND
4	ENF AUTO
5	IRIS CONT
6	UNREG+12V
7	IRIS POS
8	IRIS A/R
9	NC
10	NC
11	NC
12	NC

Pin arrangement

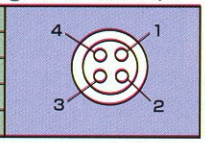
●Y/C connector

Pin No.	Signal
1	Y GND
2	C GND
3	Y output
4	C output



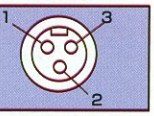
●REMOTE connector (Plug:HR 10A-7P-4P)

Pin No.	Signal
1	+12V output
2	SD input
3	SD output
4	GND



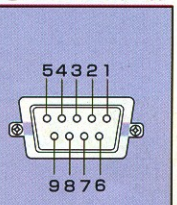
●12V IN connector (Plug:RM128PG-35)

Pin No.	Signal
1	+12V output
2	GND
3	NC

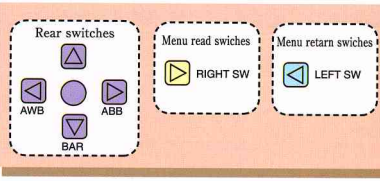


●D-Sub 9-Pin connector (Plug:HDE8-9PF(05))

Pin No.	Signal
1	Earth
2	WEN output
3	R/R Y/C output
4	G/Y/Y output
5	B/B~output
6	VBS output
7	SYNC output
8	HD output
9	VD output



Digital process functions can be set on each menu screen



■MAIN MENU
CAM MODE : MANUAL
WHITE BAL : MEM 3200K
GAIN : NORM
ULTRA GAIN : OFF
DTL : 0
DNR : OFF
SUB MEMU 1 : →
SUB MENU 2 : →
ALC : →
INITIALIZE

■SUB MENU 1
M.BLACK : 0
SHUTTER : OFF
VARIABLE : 1/60.38
CCD MODE : FLD
DTL FREQ : STANDARD
GAIN HIGH : +9dB
GAIN MAX : +18dB
AGC : +20dB

■ALC
OVER RIDE : 0
IRIS GATE : ON

■SUB MENU 2
DYNA CHROMA: OFF
CHROMA GAIN : +10
CONTRAST : OFF
KNEE : ON
AUTO KNEE : ON
MASKING : OFF
GAMMA : ON
AUTO SHADING
WHITE GATE : OFF
MESSAGE RTN : OFF

■SPECIAL SET
REMOTE : 9600bps
LENS : →
IRIS GATE : →
WHITE GATE : →
LEVEL : →
MASKING : →
OUTPUT/SYNC : →
ID/TITLE : →
DTL : →

■LENS
IRIS MODE : AUTO
OPEN LIMIT
CLOSE LIMIT
ZOOM
FOCUS

■IRIS GATE <ON>
GATE AREA (UP/DOWN)
GATE AREA (LEFT/RIGHT)
GATE AREA (LARGE/SMALL)

■WHITE GATE <ON>
GATE AREA (UP/DOWN)
GATE AREA (LEFT/RIGHT)

■LEVEL
R BLK : 0
B BLK : 0
R GAIN : 0
B GAIN : 0
INITIALIZE

■MASKING <ON>
R HUE : -32 R SAT : 31
Y HUE : -10 Y SAT : 10
G HUE : 6 G SAT : 6
C HUE : 12 C SAT : 12
B HUE : 31 B SAT : 31
M HUE : 0 M SAT : 0
INITIALIZE

■OUTPUT/SYNC
OUTPUT : R, G, B
MONO : ON
SYNC ON G : OFF
GL IN : HIGH
GL MODE : VBS
SC COARSE : 0°
SC FINE : -128
H PHASE : 127

■ID/TITLE
ID : OFF
TITLE : OFF
DATA SET : →

■DTL
LEVEL DEP. : 0
CRISP : 0
H/V BALANCE : 0
INITIALIZE

■DATA SET
ID : 001
TITLE : HV-D15
1234567890_ ?
ABCDEFGHIJKL
MNOPQRSTUVWX
YZ < > + - * / . , : ;
← → DEL INS RET

SPECIAL SET menu screen
The SPECIAL SET menu screen is displayed by pressing the MENU switch for 2 seconds with the UP switch pressed when the menu screen is not displayed.

●Bayonet Mount

●One-Chip VLSI Thanks to the state-of-the-art digital signal processing technology (0.5 micron processing), all signal processing from the processor section through the encoder section is accomplished within a single-chip VLSI (230,000-gates). In the development of this device careful consideration was given to lowering power consumption and minimizing the size of the device. The high signal-to-noise ratio and wide dynamic range of this device are complimented with a 10-bit A/D converter and 13-bit internal digital signal processing.

●High Resolution The three 1/2-inch, 410,000-pixels NTSC (470,000-pixels PAL), CCD's and double sampled digital processing provide 800 TV lines of resolution. High sensitivity is also assured with the micro-lens CCD technology.

●High Signal-To-Noise Ratio Thanks to the new digital noise reduction system, a signal-to-noise ratio of 63dB NTSC (61dB PAL) is assured. This provides a sharp, clear picture with less noise even in extreme high gain modes.

●Minimum Illumination of 1.0 lux The high sensitivity of the CCD's provides a standard sensitivity of f8.0 at 2000lx. Adding +20dB high gain and ultral gain allow operation down to an illumination level of just 1.0lx. This high sensitivity and digital noise reduction allow video capture under the most adverse conditions, Conditions impossible with conventional CCD cameras.

●Digital Noise Reduction (DNR) Two modes of digital noise reduction can be selected to reduce the effects of noise that is common when using high gain.

●Ultra Gain When selected, ultra gain adds an additional 12dB of gain to the camera by using a two pixel binning technique. When selected, ultra gain can increase the normal gain range from 20dB to 32dB.

●White Balance Three modes of white balance can be selected. The auto mode enables the auto tracking white balance to maintain proper white balance with changing color temperature. The memory mode will automatically adjust white balance when the AWB button is pushed. A preset mode is factory set for 3200 degrees K.

●White Gate When using the auto tracking white mode, a white gate with variable position can be selected. The camera will use this gate area to maintain proper white balance.

●Color Correction (Masking) A six vector color corrector can be selected allowing the user to independently adjust the hue and saturation of the three primary and three complimentary colors. This feature can be used to precisely match cameras, or to paint individual scene objects.

●Dyna Chroma A new dyna chroma circuit maintains chroma detail in bright highly saturated colors, providing a more realistic reproduction of the objects being imaged.

●Chroma Gain A 256 step chroma gain control allows overall adjustment of chroma without affecting the amount of chroma on the color bar output.

●Contrast A two step contrast selection provides a boost in dark areas of the image, enhancing the detail and separation of dark objects.

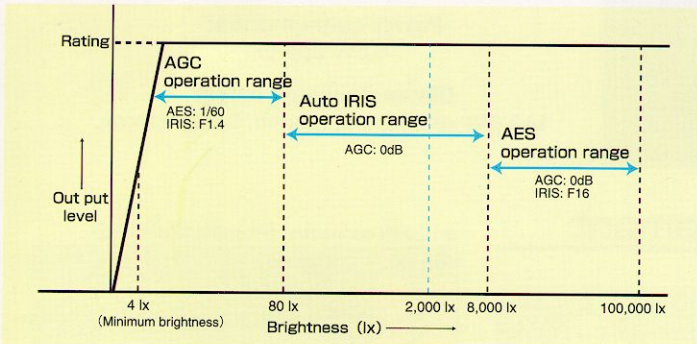
●Auto Knee An auto knee circuit can be selected allowing variable compression of bright objects that would otherwise be in the clip range of the camera. This makes it possible to shoot an object against a bright background such as a window, maintaining detail in objects inside and outside the window. Auto knee increases the dynamic range of the camera by approximately 300%.

●Auto Shading Automatic shading corrects for chromatic aberrations (color fringing at the top and bottom of the screen) that result between interactions of the lens and the camera optics.

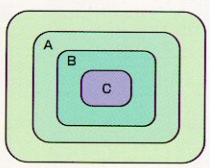
●Detail Detail level and center frequency are adjustable, allowing the user to select the proper detail setting to suit the scene being imaged. A 256 step detail adjustment provides repeatability, while matching the fine adjustment range associated with a linear pot.

●Intelligent Auto Level Control (ALC) The HV-D15 can adapt to wide changes in light levels. The micro-processor in the HV-D15 controls auto gain (AGC), auto electronic shutter (AES), and auto lens iris to control the video level even in applications with extreme changes in light levels.

ALC Operation Range



There are four ALC gate ranges to optimize the camera to a variety of conditions and subjects.



●Application Files The Camera features three application files that can store user selected setup information. Switching between application files results in each menu item being reset according to the information previously stored in the application file.

●Multiple Shutter Operation A standard electronic shutter mode can be selected in seven steps from 1/100 to 1/10,000 seconds. A lock scan mode used for imaging computer monitors allows a variable selection of shutter speeds from 1/60.38 to 1/251.5 in 1H steps. For use in medical or microscope applications, the camera can be set to a long term integration mode. In this mode the integration period can be selected in one frame increments from 1/30 to 8 seconds. An external memory or frame grabber is required.

●Lens Limits Independently adjustable limits can be set for the lens iris open and close positions. Adjustment of the open limit can be set to eliminate the "hot spot" effect that may occur when the iris is at its widest aperture setting.

●Multiple Output Encoder A multiple output encoder is used to provide a standard composite output along with a Y/C output. Additionally a component output is available on the D sub 9 connector, that can be selected between RGB, Y/ R-Y/ B-Y, or Y/C. A composite sync output along with H and V drive outputs are also provided on the D sub 9 connector.

●Genlock A composite video signal or a black burst signal can be supplied as a reference for the genlock circuit. For certain applications, the external reference mode can be selected to reference to external horizontal and vertical drive signals.

●Character Generator Scene identifications or camera locations can be displayed along with the output video using the built in character generator. A separate camera ID number can also be displayed. The position of both displays can be selected to appear on the top or bottom of the screen.

●RS-232C Interface A variety of camera functions can be controlled from a PC via the RS-232C interface for remote control. For further flexibility, the camera data can also be transferred to the PC for storage and later recall.

■Specifications

Model	HV-D15
Color system	NTSC, PAL
Prism optics	1/2" f l.4 prism
Imaging system	RGB, 3 CCDs
Imaging system	CCD equivalent to 1/2" pickup tube
No. of total pixels	811(H)x508(V)(NTSC) 795(H)x596(V)(PAL)
No. of effective pixelcs	768(H)x494(V)(NTSC) 752(H)x582(V)(PAL)
Sensing area	6.45(H)x4.84(V)(NTSC)6.47(H)x4.83(V)(PAL)mm
Sync system	Internal or genlock (automatically switched)
Horizontal resolution	800 TVL (Y at center)
Signal-to-noise ratio	NTSC: 63dB, PAL: 61dB (Gamma: 1, DTL: OFF, gain: 0dB, DNR: ON)
Standard sensitivity	2000lx, f 8
Minimum illumination	1.0lx
Gamm corection	0.35 to 1.0 (ON/OFF)
Presrt color temperature	3200K
Vertical contour correction	2H
Lens mount	Bayonet (Flange focal distance: 35.74mm)
Sensitivity setting	AGC(0~+20dB), NORM/HIGH/MAX, ULTRA GAIN
Electronic shutter	
Preset mode	1/100、1/250、1/500、1/1,000、1/2,000、1/4,000、1/10,000s
Lock scan mode	1/60.38 to 1/251.5 (NTSC), 1/50.38 to 1/253.8(PAL) in 1H step
Auto electronic shutter	OFF to 1/1,000s (continuously variable up to 4 F-stop value in 1H steps)
Long term integration (*)	1/30~8sec (NTSC), 1/25~8sec(PAL)(1 frame steps)
Color bars	NTSC:SMPTE, PAL:FULL
Power supply	Rated 12VDC (Operable on 10.5 to 17VDC, no ripple noise)
Power consumption	8W approx.
Operating temperature	-10 to 45℃
Storage tmperature	-20 to 60℃
Dimensions	80 (W) x85 (H) x134 (D) mm
Mass	950g approx.

(*) A video memory is needed for successive videos.

■Major accessories

- ●Lens (13x) YH13 x 7.5, KRS
- ●Lens (14x) S14 x 7.5, BMD-D24
- ●AC adaptor, AP-60A
- ●Camera control box, RC-C10
- ●1/2"—2/3" conversion adaptor, LM-C10

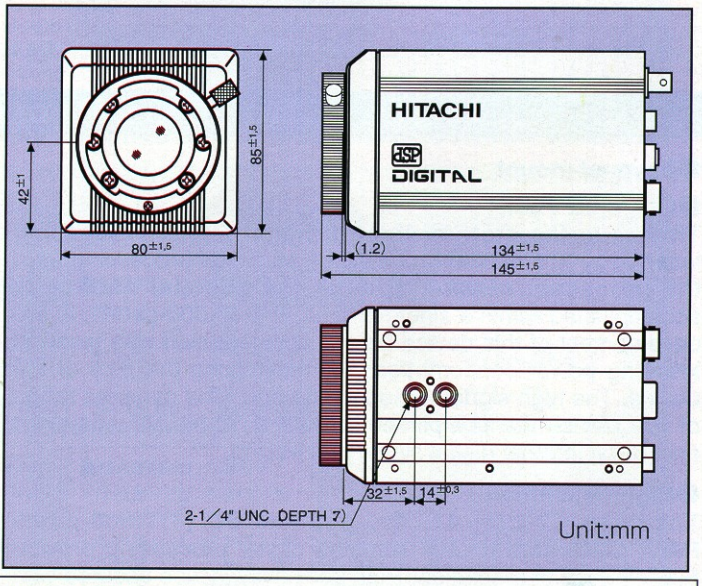
■Input/output signals

Model	HV-D15
Input signal conditions	
Genlock signal	VBS:1.0Vp-p±3dB or black burst/75Ω (Sync:0.3±0.1Vp-p, burst:0.3±Vp-p)
Serial data output	1.5Vp-p/HIGH, RS-232C level
Output signal conditions	
Composite video output	VBS : 1.0Vp-p/75Ω,BNC
Y/C outputs	Y : 1.0Vp-p/75Ω C : 0.286Vp-p (burst) /75Ω (NTSC), 0.300Vp-p (burst) /75Ω (PAL)S-Terminal
RGB outputs	R : 0.7Vp-p/75Ω G : 0.7Vp-p/75Ω B : 0.7Vp-p/75Ω D-sub connector
Sync outputs	HD : 2Vp-p/75Ω VD : 2Vp-p/75Ω SYNC : 2Vp-p/75Ω D-sub connector
Seriai data output	1.5Vp-p/LOW,RS-232C level 4-pin connector

■Standard composition

Camera·····1 (2)Power plug (RM12BPG-3S)·····1
Accessories (3)Remote plug(HR10A-7P-4P(01))···1
(1)Lens mount cap·····1 (4)Operation manual·····1

■Dimensions



CAUTION:To product ensure safe operation, please read the instruction manual before using this product.

These Specifications are subject to change without notice.

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