HITACHI

HV-D30

**High Resolution C-Mount 3 CCD Color Camera
Compact, High Performance, Multi Purpose Camera
with 12 bit A/D and 3 million gate DSP**

3CCD DIGITAL

HV-D30 Performance

1. **Digital Signal Processor:**
   A 3rd generation Digital Signal Processor (DSP) chip utilizing Hitachi's most recent processing technology (0.18μm, internal core, 1.8V drive, and 3 million gates) is contained on a single newly developed ultra LSI (large scale integration) chip. The new DSP enables the camera to achieve its small size, low power consumption, and high stability.

2. **Performance in a cube:**
   The camera is built into a compact cube with a short depth dimension for easy incorporation into systems where space is critical. The multi-functional design is conducive to a wide range of industrial, medical, and other general purpose imaging applications.

3. **High picture quality:**
   High Sensitivity and High Resolution are achieved through the use of three 1/3 inch CCD's, each with 410,000 picture elements (470,000 PAL). Together with the 12-bit analog to digital (A/D) converter and 14-bit accelerated DSP a horizontal resolution of 800TV lines and a high signal to noise ratio (S/N) of 64 dB (62 dB PAL) is obtained with the use of dynamic noise reduction (DNR). Clear high quality low noise images are now possible even in a high gain mode.

4. **Adjustable Flange back:**
   A built-in flange back adjustment allows the cameras optical focus to be optimized with the selected optical system.

5. **Auto Shading Compensation (ASC):**
   The ASC function can automatically compensate for color shading errors caused by interaction between the lens and prism assembly in C-Mount optical systems. Two modes of shading are provided and can be selected according to the cameras application, a color shading mode or a two-dimensional luminance-shading mode.

HV-D30 Features

1. Four scene files are provided for the setup, storage and recall of all camera functions.
   The camera configuration can be easily changed through the selection of a scene file.

2. A six-vector color corrector allows independent adjustment of the hue and saturation of the primary and secondary colors so that optimum color fidelity can be maintained.

3. A versatile color detail adjustment circuit enables the selection and independent adjustment of detail in two separate colors. This function can be used as a "flesh tone detail" circuit for smoothing human complexion, or for enhancing a color contour for increased visibility.

4. Dynamic Chroma Compensation is provided to maintain proper color saturation in scenes with high luminous levels. Dynamic range is expanded allowing high quality reproduction of outdoor and other difficult scenes.

5. Intelligent Auto Level Control (ALC) can be selected to allow unattended operation over a wide range of light levels. Digital light metering, CPU controlled automatic gain control (AGC), lens iris, and an auto electronic shutter (AES) operate under continuous control to compensate for varying light levels. Auto Tracking White Balance (ATW) can also be selected to maintain proper color temperature with changing light levels. Note: AES functions continuously only with a manual override lens.

6. Flare Compensation can be adjusted to compensate for color changes in dark areas, improving color fidelity, when a zoom lens is used on the camera.

7. Picture polarity can be selected as normal (positive) or negative, to suit the imaging requirements.

8. A full complement of video outputs is provided on the camera. Outputs include composite, Y/C, RGB, or Y/ R-Y/ B-Y. Simultaneous output of composite, Y/C and an additional component signal is possible, utilizing two separate output connectors.

9. The camera can be synchronized with external devices using the genlock input or by use of external HD and VD signals. Composite sync, HD and VD signals can be output for use with other equipment.

10. An External Trigger Signal can be used to provide the capture of an image. Several trigger modes are available to suit the intended application. A long term integration mode of up to 8 seconds can be used to capture images at extremely low light levels.

11. An RS-232C port is provided for bi-directional communications with an external device, allowing complete control, setup and operation of all camera functions.
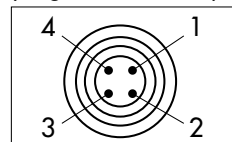
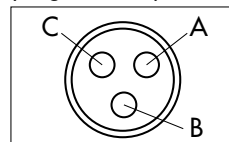## Pin arrangement

LENS connector
(Plug:E4-191J-100)
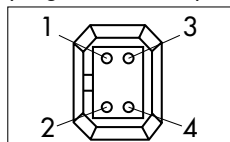
Pin No.	Signal
1	UNREG +12V OUT
2	NC
3	IRIS CONT/VIDEO
4	GND

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

Pin No.	Signal
1	UNREG +12V OUT
2	RXD/SD IN
3	TXD/SD OUT
4	GND

12V IN connector
(Plug:R03-P3F)

Pin No.	Signal
A	GND
B	UNREG +12V
C	NC

Hi-Density 15-pin connector
(Plug:KEC-15P (Heujing))
(Plug:JK-SP2140 (Pin contact))
(Plug:JK-C151C (Cover, inch))
(Plug:JK-C152C (Cover, miri))
(Screw:No.4-40UNC (inch))
(Screw:M2.6x0.45 (miri))
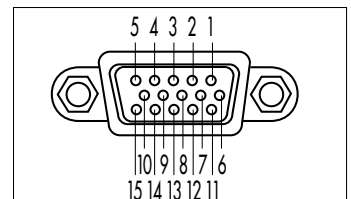
Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	R/R-Y/C OUT	6	VIDEO GND	11	GND
2	G/Y/Y OUT	7	VIDEO GND	12	RXD
3	B/B-Y/VBS2	8	VIDEO GND	13	HD IN/HD/OUT/SYNC OUT
4	WE OUT	9	UNREG +12V IN	14	VD IN/VD OUT/GL IN
5	GND	10	TRIG IN	15	TXD

Major specifications

Color system	NTSC/PAL	
Optical system	1/3-inch, F2.2 prism	
Imaging system	R, G, B 3CCD	
Lens mount	C-mount (Frangeback 17.526 mm in air)	
CCD	1/3-inch interline transfer	
	Total pixels	NTSC 811(H) x 508(V) PAL 795(H) x 596(V)
	Effective pixels	NTSC 768(H) x 494(V) PAL 752(H) x 582(V)
	Effective image area	NTSC 4.88(H) x 3.66(V) mm PAL 4.89(H) x 3.64(V) mm
Horizontal resolution	800 TV lines (Y signal center, DTL off)	
S/N	NTSC 64 dB (DNR on) 61 dB (DNR off) PAL 62 dB (DNR on) 59 dB (DNR off) (Y OUT, γ off, DTL off, Gain 0 dB)	
Standard sensitivity	2000 lx, F9.5	
Sensitivity setting	AGC (0 to +24 dB) / Manual (0 to +24 dB, 1 dB step) and Digital gain (approx. 0 to +6 +12 dB, 6 dB step)	
Minimum Sensitivity	0.9 lx(F2.2 +24 dB, Digital gain +12dB)	
Electronic shutter	4 mode	
	Preset mode	1/100 s (PAL 1/60 s) to 1/100,000 s, 10 steps
	Lock scan mode	NTSC 1/60.38 s to 1/100,000 s PAL 1/50.38 s to 1/100,000 s
	Auto electronic Shutter (AES)	OFF to 1/100,000 s
	Long term Integration	Field/Frame integration selectable NTSC 1/30 s to 8 s PAL 1/25 s to 8 s (1 frame step) (external image memory needed for continuous image)
External trigger	Field/Frame readout selectable One pulse trigger input	
White balance mode	Preset : 3200 K/5600 K selection Memory : Auto white balance Auto: Real time auto white balance	
Scene files	4 files	
Color bars	NTSC : SMPTE, PAL : FULL	
Power supply voltage	12 V rated (stable operation at 10.5 to 15 Vdc)	
Power consumption	4.5 W approx	
Dimensions	65(W) x 65(H) x 80(D) mm	
Mass	400 g(14 oz) approx. (not include lens)	
Ambient temperature	Operating : -10 to +45 ºC (+14 to 113 F) Storage : -20 to +60 ºC (-4 to 140 F)	

Standard composition

Camera ·· 1
Accessories
Power plug(R03-P3F) ······································· 1
Operation manual ·· 1

Major accessories

- Camera control box, RC-Z3
- Junction box, JU-Z2
- Level converter, JU-C20

Input and output signals

Input signals	
Genlock (Multi*2)	VBS 1.0 Vp-p±3 dB or black burst/75 Ω HD/VD 2 to 5 Vp-p, negative
External Trigger(Multi)	Low 0 Vdc, High 2 to 5 Vdc
Serialdata (Remote*3)	1.5 Vp-p / High (when connected to RC-Z3) RS-232C level (when connected to personal computer)

Output signals	
Composite video (Video, Multi *1)	VBS 1.0 Vp-p / 75 Ω
RGB (Multi *1)	0.7 Vp-p / 75 Ω
Component (Multi *1)	Y : VS 1.0 Vp-p / 75 Ω R-Y : 0.7 Vp-p / 75 Ω B-Y : 0.7 Vp-p / 75 Ω
Y/C (Multi *1)	Y : VS 1.0 Vp-p / 75 Ω C : NTSC BURST 0.286 Vp-p / 75 Ω PAL BURST 0.3 Vp-p / 75 Ω
Sync (Multi *2)	SYNC/HD : 2.0 Vp-p / 75 Ω VD : 2.0 Vp-p / 75 Ω
Serial data(Remote *3)	1.5 Vp-p / Low (when connected to RC-Z3) RS-232C level (when connected to personal computer)

Note1 : RGB,Component and YC/VBS Multi connector outputs are selected by menu.
Note2 : Sync and HD Multi connector output are selected by menu.
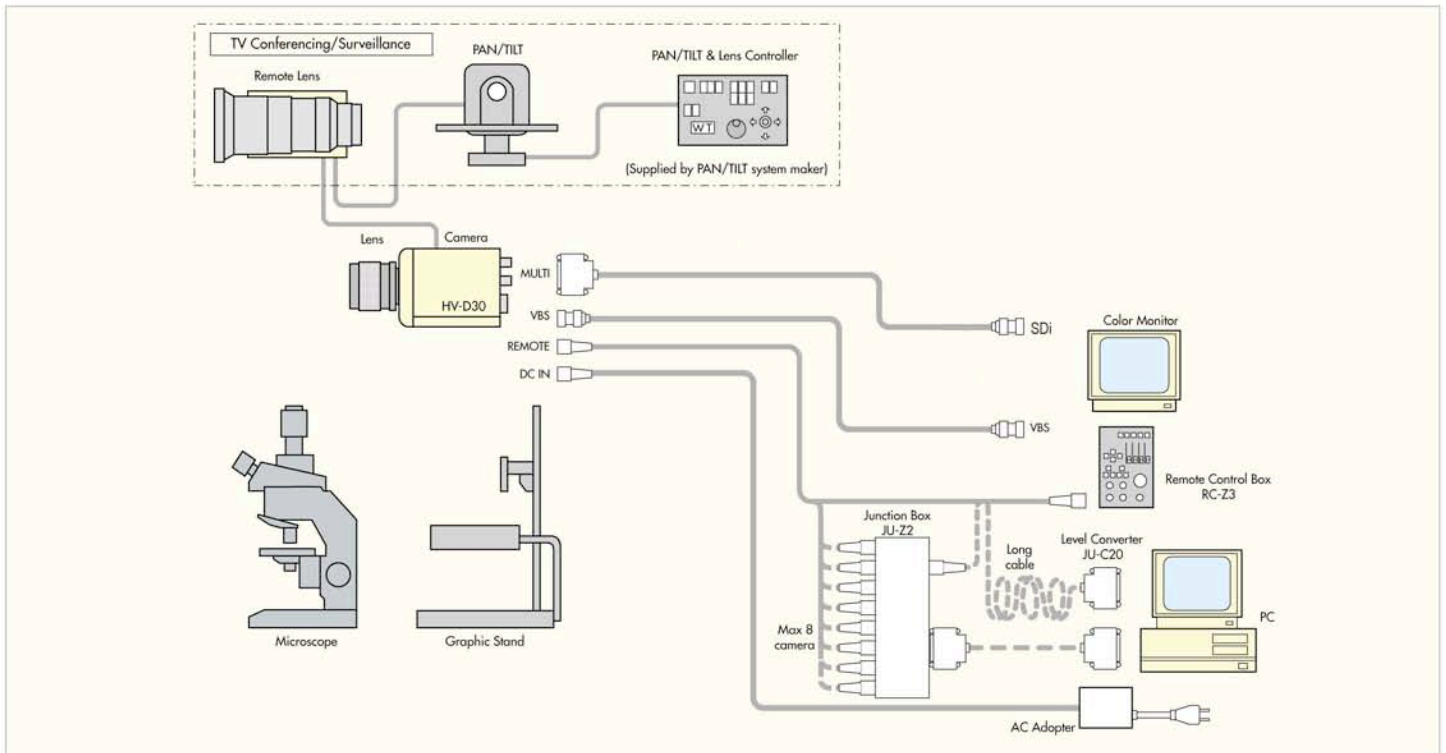   Inputs (Genlock, HD/VD) and Outputs (Sync, HD/VD) are selected by internal switch
Note3 : Set internal switch according to connected equipment.
    (Factory setting RS-232C)

Dimensions
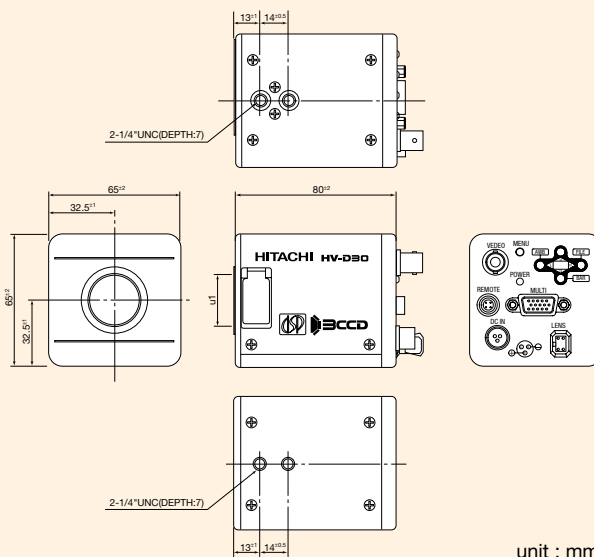
unit : mm

System configurations

Accesories
Remote control box,RC-Z3

Major specifications

Serial data output : 1.5Vp-p

Maximum cable length : 200m(cable equiv.to HC-5B2)

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

Ambient temperature : 5 to 40°C

Power consumption : 0.5W approx

Dimensions and mass : 116(W)X128(H)X60(D)mm,500g approx

Specification are subject to change without notice.