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CCD Color Camera

KP-D531U-S3

Specifications

TENTATIVE

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1. General

Hitachi's KP-D531U-S3 color camera uses a single integration type CCD complemented by a digital signal processing system to provide both high quality images and a host of important compensation functions.

The high density CCD features 380,000 effective picture elements that deliver clear images even under low light conditions. Digital control enables fully exhibiting the outstanding sensitivity and resolution capabilities.

Integration sensitivity boost, auto-iris, auto-white balance and many more functions are provided. Digital zoom permits enlarging the image even when using a fixed focus lens.

The KP-D531U-S3 is an optimum choice for CCTV systems in demanding day/night continuous operation.

2. Principal features

(1) High sensitivity and resolution

Horizontal resolution of 480 TV lines at standard sensitivity is derived from the high density interline transfer CCD with on-chip microlenses. The sensitivity enhance function allows pickup down to 0.2 lx (with F1.4 lens, AGC maximum Color mode). Besides 32× automatic, the integration can also be set manually for up to 64× in situations stressing high sensitivity.

(2) Digital signal processor (DSP)

Digital processing includes 2 H enhancer and contour correction to deliver clear pictures and high signal to noise ratio (S/N). Picture control parameters can also be adjusted with the aid of on-screen menus, thus enabling optimum adjustments to match the application.

(3) Electronic shutter

The electronic shutter can be set in 10 steps from standard (off setting) 1/60 second to 1/30000 second. Auto electronic shutter (AES) operates to 1/180000 second. Even with a fixed iris lens, the shutter speed responds to the amount of light to keep the signal output at optimum level.

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(4) Backlight compensation

Backlight compensation can operate with either a video signal or control voltage input type auto-iris lens. The sensing area can also be selected according to usage conditions.

(5) Three white balance modes

Auto-tracking white balance (ATW) functions by detecting white color in the scene at a color temperature from 2500 to 8000 Kelvin. Auto-white balance control (AWC) is a preset type function whereby white color in the scene is detected and white balance is automatically adjusted, then the setting status is stored. Manual white balance allows adjusting red and blue gain manually according to requirements.

(6) Noise reduction

At low illumination (below 2 lx), DNR reduces noise at AGC gain up setting. The DNR function operates below about 2 lx at AGC on 31 dB or Max settings.

(7) Text display

Up to 24 alphanumeric characters can be displayed at either the top or bottom of the screen.

(8) Digital zoom

The screen can be smoothly enlarged up to 4 times.

(9) Color- Monochrome (B/W MODE)

Clear color video in the daytime, very high sensitivity of monochrome video at night by the automatic change function. This function is suitable for the day / night continuous surveillance.

(10) Picture quality menus

A wide variety of modes and parameters can be selected from menus and adjusted by using rear panel key buttons. See Specifications, item 19.

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3. Specifications

(1) Pickup element : Interline transfer type CCD (with on-chip microlenses)
Total pixels : 811 (H) × 508 (V)

Effective pixels : 768 (H) × 494 (V)

Scanning area : 6.45 (H) × 4.84 (V) mm

Unit cell size : 8.4 (H) × 9.8 (V) μ m

(2) Scanning system : 2:1 interlace

Frequency : Horizontal:15.734 kHz

Vertical :59.94 Hz

(3) Sync system : Internal

(4) Video signal output

: Composite video: 1.0 V_{p-p}/75 Ω unbalanced

Video : 0.7 V_{p-p} positive or negative
(negative picture)

Sync : 0.3 V_{p-p} negative

Burst : 0.3 V_{p-p} more than 8 cycles

Subcarrier frequency :3.579545 MHz \pm 100Hz

Connector : BNC type

(5) S/N (luminance signal) :More than 50 dB

(standard gain, enhancer and gamma off)

(6) Resolution

	Standard sensitivity	Sensitivity boost
Horizontal	More than 480 TV lines	440 TV lines
Vertical	More than 350 TV lines	260 TV lines

(7) Scene illumination range

: 0.02 to 100,000 lx (F1.4, Auto-iris lens)

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(8) Minimum illumination

Color : 0.2 lx (F1.4, 3200K, AGC maximum)

Monochrome: 0.02 lx (F1.4, 3200K, AGC: maximum, Tungsten lamp)

- * If even greater sensitivity is required, electronic sensitive can be increased up to 32 times.

(9) AGC : On/off selectable

Max. gain at on setting selectable

: 6, 12, 21, 31 dB and MAX.

(factory setting is 31 dB)

(10) Electronic shutter speed

: Selectable in 10 steps

1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000,

1/4000, 1/10000, 1/20000, 1/30000 second,

and Auto

(11) Integration multiple setting Automatic or Manual (fixed)

Automatic : 2, 4, 6, 8, 10, 12, 16, 32 times

Manual : 2, 4, 6, 8, 10, 12, 16, 32, 64 times

(12) Backlight compensation On/off switchable

Sensing areas: selectable from 9 areas

(13) Auto-iris lens outputs

: Video signal input type lens

(a) Luminance signal : 1.0 Vp-p/high impedance

Power supply : 12 VDC 60 mA

(b) Iris control voltage input (galvanometer) type lens

Coupling coil impedance

Damper : 1150 Ω \pm 10 %Drive : 190 Ω \pm 10 %

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- (14) White balance : Selectable auto-tracking (ATW), preset (AWC), manual (MANUAL) (R/B gain adjustment)
- (15) Text display : One line of up to 24 alphanumeric characters
Selectable display position
- (16) Noise reduction : Selectable on/off
effective only at 31dB or MAX. gain.
- (17) Digital zoom : Up to 4×, selectable enlarge position
Resolution loss with magnification (approx. 50 % at 2× zoom)
- (18) Color-Monochrome (B/W MODE)
OFF : Color always mode
ON : Monochrome always mode
AUTO: Mode selected in response to brightness.
(Can be set for high, medium or low)
- (19) Picture adjust menus : Modes and settings can be selected and adjusted from on-screen menus
- | | |
|----------------------------|--|
| (1) Text display | On/off, text edit, display position |
| (2) Backlight compensation | Selectable on/off |
| (3) Level detect area | Selectable |
| (4) Video level | Adjustable |
| (5) AGC | Selectable on/off, max. gain |
| (6) Shutter speed | Selectable |
| (7) Sensitivity | Selectable auto/manual, times |
| (8) Color-Monochrome | Selectable mode |
| (9) White balance | Selectable mode |
| (10) Digital zoom | Adjustable Wide (standard) to Tele (max. 4×) |
| (11) Gamma correction | Selectable on/off |
| (12) Chroma level | Adjustable |
| (13) Black level | Adjustable |
| (14) Enhancer | Adjustable |
| (15) Video signal polarity | Selectable negative/positive |
| (16) Noise reduction | Selectable on/off |
| (17) Burst signal | Selectable on/off |
| (18) B/W gain | Selectable on/off |

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- (20) Lens mount : C/CS mount (C mount adaptor provided)
- (21) Power supply : Auto swichable DC 12V / AC 24V
: DC 12V \pm 10 %, Approx. 600 mA
: AC 24V \pm 10 %, Approx. 7.4 W
- (22) Ambient temperature : -10 to +50 °C, 30 to 80 % RH
- (23) Storage ambient : -20 to +60 °C, 20 to 90 % RH
- (24) Vibration endurance : Less than 24.5 m/s², 10 to 55 Hz, 30 minutes each
on XYZ axes
(Do not subject to strong vibration for long periods of
time.)
- (25) External dimensions : 64 (W) \times 63 (H) \times 123 (D) mm
(not including lens and protrusions)
- (26) Mass : Approx. 400 g (not including lens)
- (27) Supplied equipment : Camera(with tripod adaptor ,and C mount adaptor)
Operating instructions
Lens plug (E4-191J-100)
- (28) Optional accessories : Lens (see operating instructions)
Remote plug (HR10A-10P-12P(01))

Note: If used continuously, be sure to operate at less than 40 °C for long term stable performance.

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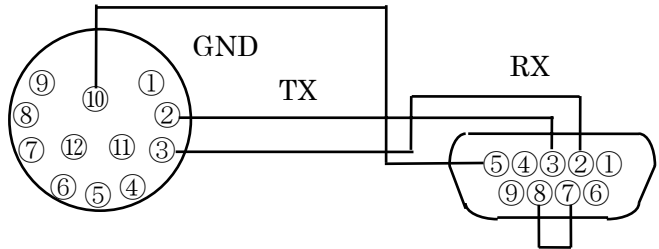
4. Remote control

The KP-D531U-S3 can be used with three types of remote control: operation from a personal computer, setting menu operation, and sensitivity boost operation.

1) Operation from a personal computer

Pin and signal assignments are indicated in the following table.

Pin No.	Menu operation
1	Not connected
2	Tx input
3	Rx output
4	Not connected
5	Not connected
6	Not connected
7	Not connected
8	Not connected
9	Not connected
10	Ground
11	Not connected
12	Not connected



Wire the optional remote plug as indicated in the figure. Check that wiring is correct, then plug into the remote connector.

Notes: Engage the plug only when changing the settings. When finished, disconnect the plug.

(2) Setting menu operation

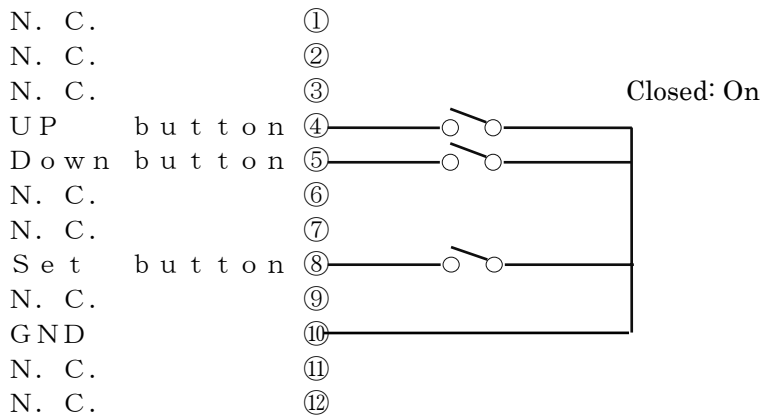
Pin and signal assignments are indicated in the following table.

Pin No.	Menu operation
1	Not connected
2	Not connected
3	Not connected
4	Up button
5	Down button
6	Not connected
7	Not connected
8	Set button
9	Not connected
10	Ground
11	Not connected
12	Not connected

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Wire the optional remote plug as indicated in the figure.
 Check that wiring is correct, then plug into the remote connector.



(negative logic)

Sensitivity boost remote control connection diagram

Remote control switch settings and sensitivity multiples are indicated in the table.

(3) Sensitivity boost control

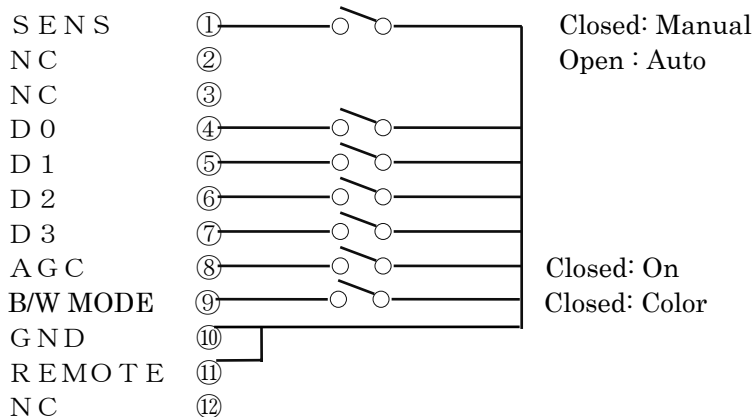
Pin and signal assignments are indicated in the following table.

Pin No.	Operation
1	Sens auto/manual
2	Not connected
3	Not connected
4	D0
5	D1
6	D2
7	D3
8	AGC
9	DNR
10	Ground
11	REMOTE
12	+3V

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Wire the optional remote plug as indicated in the figure.
 Check that wiring is correct, then plug into the remote connector.



(negative logic)

Sensitivity boost remote control connection diagram

1: Switch on (closed)
 2: Switch off (open)

Multiple	D 3	D 2	D 1	D 0	Multiple
0	0	0	0	0	1
0	0	0	0	1	2
0	0	1	0	0	4
0	0	1	1	0	6
0	1	0	0	0	8
0	1	0	1	0	10
0	1	1	0	0	12
0	1	1	1	0	16
1	0	0	0	0	32
1	0	0	1	0	64
1	0	1	0	0	128*
1	0	1	1	0	164*
1	1	0	0	0	256*
1	1	0	1	0	320*
1	1	1	0	0	420*
1	1	1	1	0	510*

Notes

In the Sens Auto mode, the multiple setting indicated in the table is the maximum sensitivity. The sensitivity is adjusted automatically according to the brightness.

When set to 128× to 510×, the multiple is fixed at that value, even if SENS AUTO is selected.

The menu is not displayed while the remote plug is connected. Disconnect the plug when not using remote control.

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Notice:

These specifications are subject to change without prior notice due to product improvement.

Confirm the most recent specifications at time of order.

Hitachi Kokusai Electric certifies this product complies with the standard warranty conditions of Hitachi Kokusai Electric , and that quality control is implemented to the extent required to comply with these conditions.

Warranty and service:

- (1) The guarantee period is one year after the data purchase. However, the defects due to erroneous use or intentional act are excluded.
- (2) As the defect after expiration of the guarantee period, where product repair is possible, repair will be performed at charge.
- (3) The present Warranty pertains only to the camera unit. Secondary malfunctions attributable to camera failure as well as expenses incurred by disassembly and reassembly of the related system, are beyond the scope of this Warranty.
- (4) Compensation for loss of business, loss or damage to software, database and other contingent losses are beyond the scope of this Warranty.
- (5) Hitachi Kokusai Electric Inc. is not liable for the losses caused when the equipment is used in a system, use for business trades, production process, medical fields, crime prevention applications, etc.
- (6) The parts used in the equipment have their respective lives. The lives of such parts will be shortened under the environments of high temperature or high humidity.

When the stable operation is required for a long time, It is recommended to perform periodical maintenance and inspection every year or every two years.

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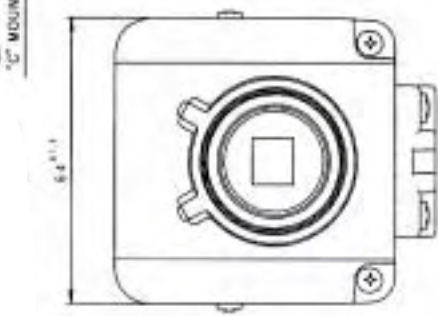
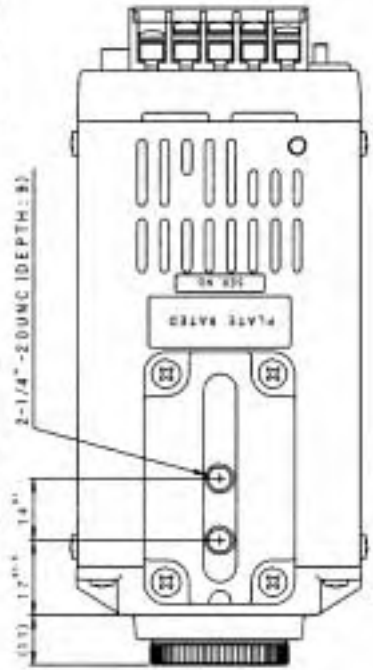
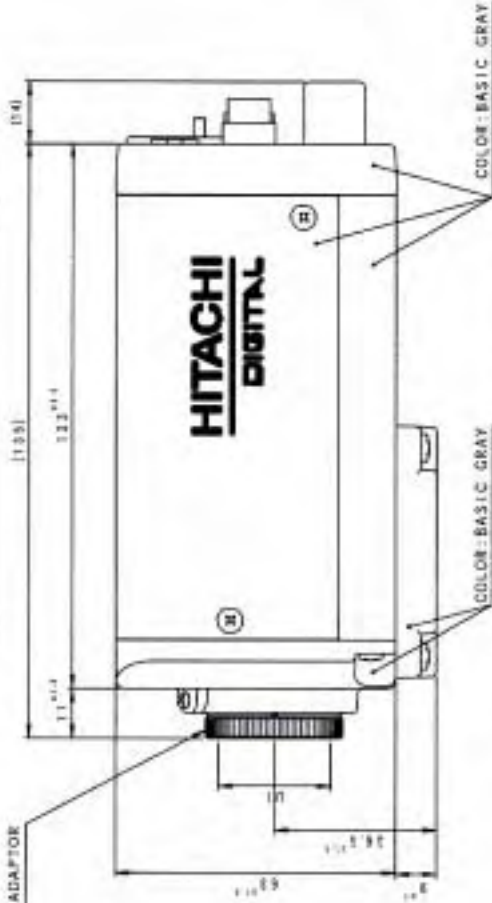
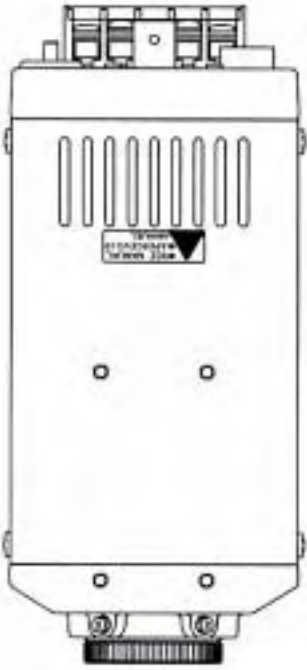
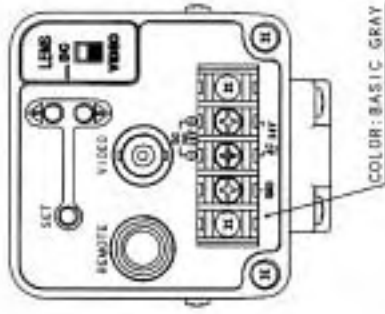
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MASS: APPROX. 400 g
 UNIT: mm
 SCALE: NTS



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