

Preliminary

VGA Progressive Scan CCD Color Camera

KP-FD30/KP-FD30CL

1 / 2-inch RGB primary color filter progressive scan CCD image sensor RGB color camera
High frame rate 60 frame per second

The KP-FD30 is equipped with the progressive full frame RGB output of high frame rate(approx. 60 frame per second). Optionally The KP-FD30CL outputs Camera-Link. Both camera is equipped the external synchronization(HD/VD), the external trigger function, etc., it is suitable for the image-processing equipment input.

Major feature

- **Suitable for the image-processing equipment input.**
Small lightweight size, since adoption of multi-connector with one cable.
- **High resolution and high color fidelity**
By adoption of the progressive scan CCD image sensor and RGB primary color mosaic filters, the picture of high vertical resolution and high color fidelity can be acquired.
- **A new digital signal processor (DSP)**
The clear picture of a high signal to noise ratio (S/N) is obtained by the new digital signal processor (DSP) adoption which has improved luminance signal processing, such as 5H enhancer processing.
- **CCD drive functions**
 - .Preset electronic shutter (settable 11 steps from 1/60 second to 1/50,000 second and 27 steps from 1/30 second to 8 second.)
 - .Variable electric shutter (1H steps from 1/60 second to Approx. 1/10,000 second)
 - .Auto electronic shutter[AES] (from 1/60 second to approx. 1/50,000 second)
 - .Frame/field on demand (one trigger and fixed shutter modes)

● **Output of NTSC system (2:1 interlace scan) (KP-FD30 only)**

It can be set as the image output of NTSC system (2:1 interlace scan) by switch change

| | Standard | Optionally | For OEM | |
|---------------|-------------------|-------------------|-------------------|-------------------|
| Model | KP-FD30 | KP-FD30CL | KP-FD30F | KP-FD30USB |
| Output format | Analog RGB | Camera Link | IEEE1394 | USB2.0 |
| Frame rate | 60 frame per sec. | 60 frame per sec. | 30 frame per sec. | 30 frame per sec. |

Main specifications

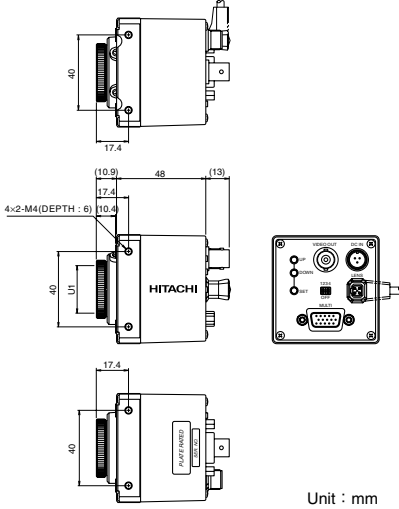
| | |
|--|--|
| Imaging device | 1/2-inch progressive scan interline CCD |
| No. of effective pixels | 659(H) × 494(V) |
| Unit cell size | 9.9(H) × 9.9(V) μm (Square pixel) |
| Scanning area | 7.48(H) × 6.15(V) mm |
| Color filter | R, G, B primary color mosaic filters on chip |
| Scanning system (Selectable by switch) | Progressive scan (VGA mode) 2:1 interlace scan (NTSC mode) |
| Frequency | Horizontal: 31.468 kHz Vertical: 59.94 Hz |
| Sync system | Internal / external (HD/VD auto selection) |
| Internal sync output | :HD/VD/SYNC 2 Vp-p/75Ω, Negative polarity WE: 5 Vp-p, Negative |
| External sync input | HD/VD 2 to 5 Vp-p, Negative polarity EXT. Trigger input: Low 0 VDC, High 2 to 5 VDC |
| Video signal output | RGB output (G on SYNC) Y/C output (Only at the NTSC mode) VBS output (Only at the NTSC mode) |
| S/N (Y signal) | More than 50dB (AGC, enhancer and gamma off) |
| Resolution (Y signal at center) | Horizontal: 440 TV lines Vertical: 480 TV lines (VGA mode) 350 TV lines (NTSC mode) |
| Standard sensitivity | 2,000 lx (F5.6, 100IRE) |
| Minimum illumination | 10 lx (F1.4, AGC ON, 50IRE) |
| Sensitivity selection | Gain Adjustable at AGC OFF and AGC Limit Gain |
| Electric shutter speed PRESET | Selectable in 11 steps high speed shutter OFF(1/60), 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000 1/10000, 1/20000, 1/30000, 1/50000 second : Approx. 1H steps from 1/60 second to 1/10,000 second |
| AES | Selectable in 27 steps low speed shutter OFF(1/60), 1/30, 1/15, 1/10, 1/7.5, 1/6, 1/5, 1/3.75, 1/3, 1/2.5, 1/2, 1/1.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8 second |
| VARIABLE | From 1/60 second to approx. 1/50,000 second (Response : SLOW, NORMAL, FAST) Approx. 1H steps from 1/60 second to 1/10,000 second |

| | |
|------------------------------------|---|
| Auto level control [ALC] | (The auto level control system of AES, lens iris and AGC.) AVERAGE / PEAK&AVERAGE / AREA (Scanning area is selectable from 9 area.) |
| Auto-iris lens outputs [DC/VIDEO*] | DC (Iris control voltage input type lens, cable length over 150mm) : Coupling coil impedance Damper : 1.150 Ω ±10% , Drive : 190 Ω ±10% Power supply : 12 VDC, 60 mA Note : "VIDEO" is optionally. |
| White balance | Selectable in 3 modes Auto-tracking[ATW]:2,500K~6,000K preset [AWC] : (2,500K~10,000K) R/B gain manual control [MANUAL] (2,500K~10,000K) |
| Text display | 24 alpha-numeric characters in one line (only KP-FD30) |
| Picture adjustment | Modes and settings can be selected and adjusted from on-screen menu (only KP-FD30) |
| Remote control | Modes and settings can be selected and adjusted from PC by RS-232C level. |
| Power supply | 12 VDC ± 10 % Approx.360 mA(KP-FD30) pprox.370mA(KP-FD30CL) (Including 60mA for auto-iris lens) |
| Lens mount | C/CS mount (Frange-back adjustment) |
| Ambient temperature | Operating : -10 to +50 °C, (+14 to +122°F) 30 to 80 %RH Storage : -20 to +60 °C(-4 to +144°F), 20 to 90 %RH |
| Vibration endurance | 68.6 m/s ² (10 to 200Hz, 30 minutes each on XYZ axes) |
| Shock endurance | 490 m/s ² (vertical, horizontal, once each face) |
| External dimensions | 58(W) × 58(H) × 48(D) (not including lens and protrusions) |
| Mass | Approx.220g (without lens) |

Note : If operated continuously, be sure to use at less than +40°C(104°F) for long term stable performance.

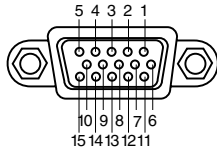
Please inquire detailed specifications of KP-FD30CL.

Dimensions KP-FD30



Unit : mm

Pin arrangement KP-FD30



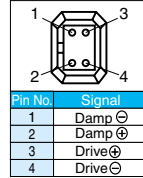
Unit : mm

High-Density 15pin connector plug:KEC-15p(Housing)

| Pin No. | Signal | Pin No. | Signal | Pin No. | Signal |
|---------|-----------|---------|----------------|---------|-----------------------|
| 1 | R/C OUT | 6 | VIDEO GND | 11 | GND |
| 2 | G/Y OUT | 7 | VIDEO GND | 12 | RXD |
| 3 | B/VBS OUT | 8 | VIDEO GND | 13 | HD IN/HD OUT/SYNC OUT |
| 4 | WE OUT | 9 | UNREG +12 V IN | 14 | VD IN/VD OUT |
| 5 | GND | 10 | TRIG IN | 15 | TXD |

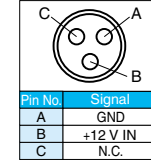
(Pin contact JK-SP2140)(Cover JK-C151C)

Lens connector (Plug:E4-191J-100)



VIDEO optionally

12V IN connector (Plug:R03-P3F)



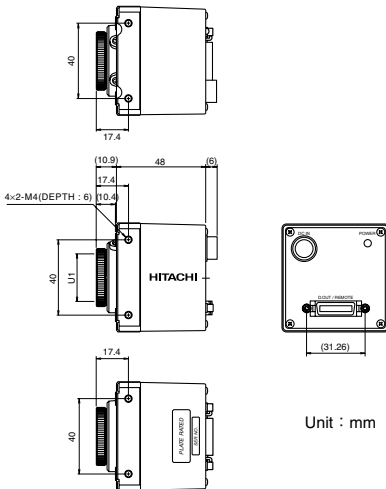
Pin No. Signal

A GND

B +12 V IN

C N.C.

Dimensions KP-FD30CL



Unit : mm

Pin arrangement KP-FD30CL

DIGITAL OUT(Camera Link): 10226-5202JL(3M)

| Pin no. | Symbol | Pin no. | Symbol |
|---------|------------------------|---------|------------------------|
| 1 | GND | 14 | GND |
| 2 | TXOUT 0 (-) | 15 | TXOUT 0 (+) |
| 3 | TXOUT 1 (-) | 16 | TXOUT 1 (+) |
| 4 | TXOUT 2 (-) | 17 | TXOUT 2 (+) |
| 5 | TXCLKOUT (-) | 18 | TXCLKOUT (+) |
| 6 | TXOUT 3 (-) | 19 | TXOUT 3 (+) |
| 7 | RX (+) | 20 | RX (-) |
| 8 | TX (-) | 21 | TX (+) |
| 9 | EXT-VD (-) [CC1 (-)] | 22 | EXT-VD (+) [CC1 (+)] |
| 10 | TRIG (+) [CC2 (+)] | 23 | TRIG (-) [CC2 (-)] |
| 11 | EXT-HD (-) [CC1 (-)] | 24 | EXT-HD (+) [CC1 (+)] |
| 12 | NC [CC4 (+)] | 25 | NC [CC4 (-)] |
| 13 | GND | 26 | GND |

RX: Serial to Camera, TX: Serial to Frame Grabber

DC IN HR10A-10P-12S(01)

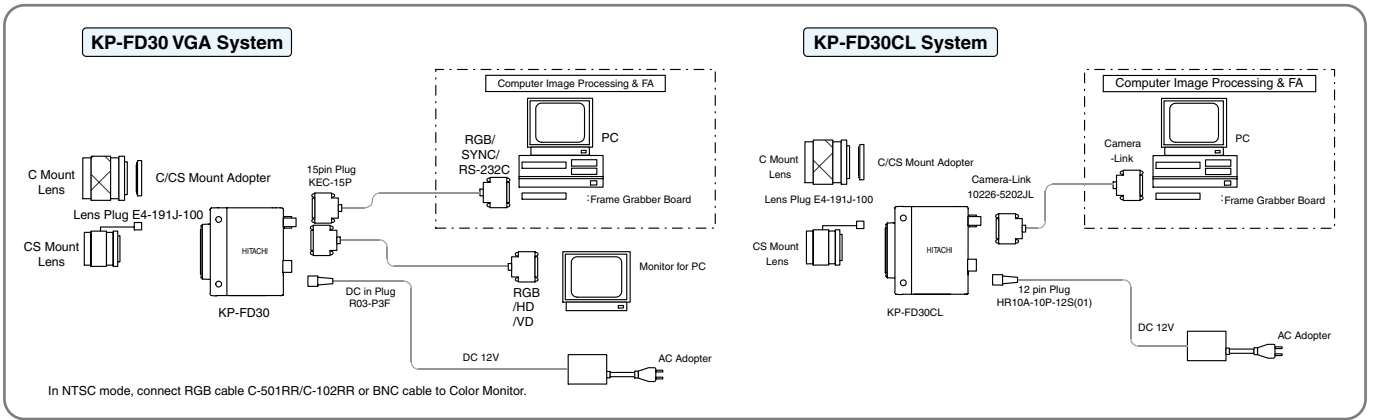
| Pin no. | Symbol |
|---------|-------------|
| 1 | GND(+12V) |
| 2 | +12V |
| 3 | GND(Y) |
| 4 | MONITOR OUT |
| 5 | GND |
| 6 | --- |
| 7 | --- |
| 8 | GND(TRIG) |
| 9 | (TRIG IN) |
| 10 | GND(+12V) |
| 11 | +12V |
| 12 | GND |

Standard Composition

- Camera.....1
- Operating manual.....1
- C/CS mount adaptor.....1

Optional accessories

- (1) Lens (see operating manual)
- (2) DC input plug.....R03-P3F
- (3) Lens plug.....E4-191J-100
- (4) RGB cable(5m).....C501RR
- (5) RGB cable(5m).....C501RR



Hitachi Kokusai Electric Inc.

Head Office : 14-20,Higashi-Nakano 3-choume, Nakano-ku, Tokyo 164-8511, Japan
Phone : +81 (0) 10-6590-8755/8756, Fax : +86 (0) 10-6590-8757
URL: <http://www.hk-kokusai.com>

Beijing Office
Beijing Fortune Building 5, Dong San Huan Bei-U, Chao Yang District, Beijing, 100029 China
Phone : +86 (0) 10-6590-8755/8756, Fax : +86 (0) 10-6590-8757

Hitachi Denshi America, Ltd. URL: <http://www.hdal.com>
Headquarters and Northeast Office : 150 Crossways Park Drive, Woodbury, New York 11797, U. S. A.
Phone : (+1) 516-921-7200, Fax : (+1) 516-496-3718

West Office : 371 Van Ness Way, Suite 120 Torrance, CA, 90501, U. S. A.
Phone : (+1) 310-328-6116, Fax : (+1) 310-328-6252

Midwest Sales : Phone : (+1) 330-334-4115, Fax : (+1) 516-496-3718
Service (+1) 989-345-5379

South Sales : Phone : (+1) 770-982-4724, Fax : (+1) 516-496-3718
Service (+1) 256-774-3777

Parts Center : Phone : (+1) 516-682-4435, Fax : (+1) 516-921-0993
Latin Sales : Phone : (+1) 516-682-4420, Fax : (+1) 516-496-3718

Hitachi Denshi Canada, Ltd. URL: <http://www.hitachidenshi.ca>
Head Office : 1 Select Avenue Unit#11 Scarborough, Ontario M1V 5J3, Canada.
Phone : (+1) 416-299-5900, Fax : (+1) 416-299-0450

Eastern Office : 5795 Chemin St. Francois St. Laurent, Quebec H4S 1B6, Canada
Phone : (+1) 514-332-6687, Fax : (+1) 514-335-1664

Hitachi Denshi (Europa) GmbH
Head Office : Wesikircher Straße 88, Jügesheim D-63110 Rodgau, Germany
Phone : +49 (0) 6106-69920, Fax : +49 (0) 6106-16906
URL : www.hitachi-denshi.de
General email address : webmaster@hitachi-denshi.de

Hitachi Denshi (U. K.) Ltd.
Head Office : 14 Garrick Industrial Centre, Irving Way, Hendon, London, NW9 6AQ, United Kingdom
Phone : +44 (0) 208-202-4311, Fax : +44 (0) 208-202-2451
Leeds Office : Brookfield House, Selby Road, Garforth, Leeds LS25 1NB United Kingdom
Phone : +44 (0) 113-287-4400, Fax : +44 (0) 113-287-4260
URL : www.hitachi-denshi-uk.com
General email address : sales@hitachi-denshi-uk.com

These products are manufactured at a factory which has received quality control system certification in accordance with the ISO international standards.



CERTIFICATE No. JMI-0062
ISO 9001/BS 5750P1
EN 29001/JIS Z9901