

# Progressive scan monochrome CCD camera

## KP-F31PCL/SCL

### Specifications(Preliminary) Ver1.0

#### 1. Specifications

Specifications of mark(\*) are subject to change

- |                               |   |
|-------------------------------|---|
| (1) Imaging device            | 1/3-inch interline CCD  |
| Total pixels                  | 692 (H) x 504(V)  |
| Effective pixels              | 659 (H) x 494(V)  |
| Pixel size                    | 7.4 (H) x 7.4 (V) um (square lattice)                               |
| Drive frequency               | 49.090902MHz  |
| (2) Scanning system           | Progressive   |
| (3) Scanning frequency        | Horizontal: 62.94kHz  |
|                               | Vertical: 119.88Hz  |
|                               | Vertical two pixel addition mode                                    |
|                               | Horizontal: 57.618kHz   |
|                               | Vertical: 219.08Hz  |
| (4) Sync system               | Internal  |
| (5) Frame rate                | 8.3ms/frames  |
|                               | 4.56ms/frames (Vertical two pixel addition mode)                    |
| (6) Sensitivity               | 400 lx, F4, 3200 K (without IR cut filter) (*)                      |
| (7) Minimum illumination      | 7.4 lx, F1.4, MAX GAIN (without IR cut filter) (*)                  |
| (8) Signal noise to ratio     | 50 dB or more   |
| (9) Video output              | Digital output Camera Link standard                                 |
|                               | Data : Base configuration 10bit x 2channel                          |
|                               | Clk = 24.5454MHz 10bit x 2channel                                   |
| (10) Power supply voltage     | 12 VDC ± 10%(*)   |
| (11) Current consumption      | 2.7 W(*)  |
| (12) Electronic shutter speed | 1/120 to 1/100000 second (variable setting) (*)                     |
| (13) Frame on demand          | One trigger, Fixed shutter (variable setting)                       |
| (14) Partial scan             | Selectable start position and width of picture grabbing in 1H step. |
| (15) Offset                   | 0 to 128 steps level /10bit 33 steps variable                       |
|                               | Factory setting: 0 steps level                                      |
| (16) Gamma compensation       | $\gamma = 1$  |

E400029612 1/7

DWN	<i>A. Hatemaka</i>	<i>Oct 18 '06</i>	KP-F31PCL/SCL Specifications	Hitachi Kokusai Electric	<b>E400029612</b>		
DSGN	<i>K. Ueno</i>	<i>Oct 18 '06</i>					
CHKD	<i>S. Kamomata</i>	<i>Oct 19 '06</i>			Rev.	<i>0</i>	<i>1 / 7</i>
APPD	<i>M. Suzuki</i>	<i>Oct 20 '06</i>					

(17) Gain setting	0 to +12dB (128steps variable) (*)
(18) Lens mount	C mount
(19) Resolution	Horizontal      500TV lines
	Vertical          490TV lines
(20) Ambient, operating	0 to + 40°C (+32 to ; 104 F), less than 90 % RH
Ambient, storage	-10 to + 50°C(+14 to +122 F), less than 70 % RH (Without Dew condensation) (*)

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

(21) Vibration endurance	98 m/s <sup>2</sup> (Acceleration: constant) (10 to 200Hz,sweep:10 min,XYZ,30 min)
(22) Shock endurance	686 m/s <sup>2</sup> (Drop test, once each top, bottom, left and right)
(23) External dimensions	29 (W) x 29 (H) x 50 (D) mm (including mount protrusions)
(24) Remote control	
(a) Signal system	
Control system	Start-stop synchronization system
Transmission rate	9600 bps
Data length	8 bits
Start bit	1bit
Stop bit	1bit
Parity	None
Bit transfer	LSB first
(b) Communications control system	
	Full control by remote control software, data send/receive by text data transfer to camera microprocessor (BSC system handshake)
(c) Control items	
1. Shutter speed	1/120 to 1/100000 second (variable setting)
2. Mode	Normal shutter, Fixed shutter, One trigger, Vertical two pixel addition (*)
3. Gain	0 to +12 dB(128 steps) (*)
4. Offset	0 to 128 steps level /10bit (33 steps) (*)
5. VD/FVAL	Factory setting: FVAL
6. HD/LVAL	Factory setting: LVAL
7. 8bit/10bit	Factory setting: 10bit
8. Partial scan mode	

E400029612 2/

DWN	/	.	.	KP-F31PCL/SCL Specifications	Hitachi Kokusai Electric	E400029612		
DSGN	/	.	.					
CHKD	/	.	.			Rev.	/	2 /
APPD	/	.	.					

## 2. Signal connection to connector

Pin No.	Signal	Pin No.	Signal
1	+12V: KP-F31PCL	14	GND
	GND: KP-F31SCL		
2	TxOUT0(-)	15	TxOUT0(+)
3	TxOUT1(-)	16	TxOUT1(+)
4	TxOUT2(-)	17	TxOUT2(+)
5	TxCLKOUT0(-)	18	TxCLKOUT0(+)
6	TxOUT3(-)	19	TxOUT3(+)
7	Rx(+)[SERTC(+)]	20	Rx(-)[SERTC(-)]
8	Tx(-)[SERTFG(-)]	21	Tx(+)[SERTFG(+)]
9	TRIG-A/VD(-)[CC1(-)]	22	TRIG-A/VD(+)[CC1(+)]
10	TRIG-B(+)[CC2(+)]	23	TRIG-B(-)[CC2(-)]
11	NC[CC3(-)]	24	NC[CC3(+)]
12	NC[CC4(+)]	25	NC[CC4(-)]
13	GND	26	+12V: KP-F31PCL
			GND: KP-F31SCL

Connector (camera side)

SDR connector (Sumitomo 3M) or equivalent

- The digital out cable should be comprised of a twisted pair of wires having 100Ω characteristic impedance and an outer sheath shield type conductor.
  - Connect the shield (ground) of the digital out cable to the ground terminal of the video equipment, frame grabber, etc.
  - Tx: Transmit data from camera to PC
  - Rx: Transmit data from PC to camera
- (Note)  
Please do not unplug and insert cable(digital out cable) with a power supplied to a camera.

(Note)

Power supply of KP-F31SCL is input via 12-pin connector.

Pin No.2, No.11 --- +12V

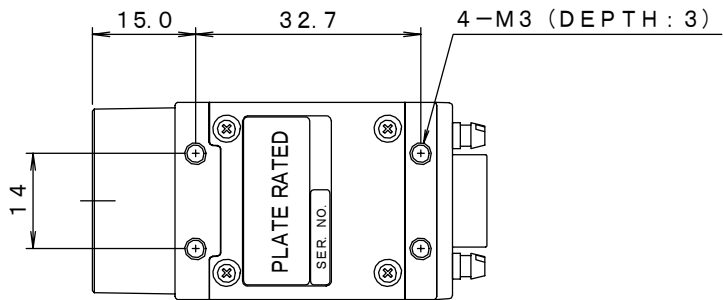
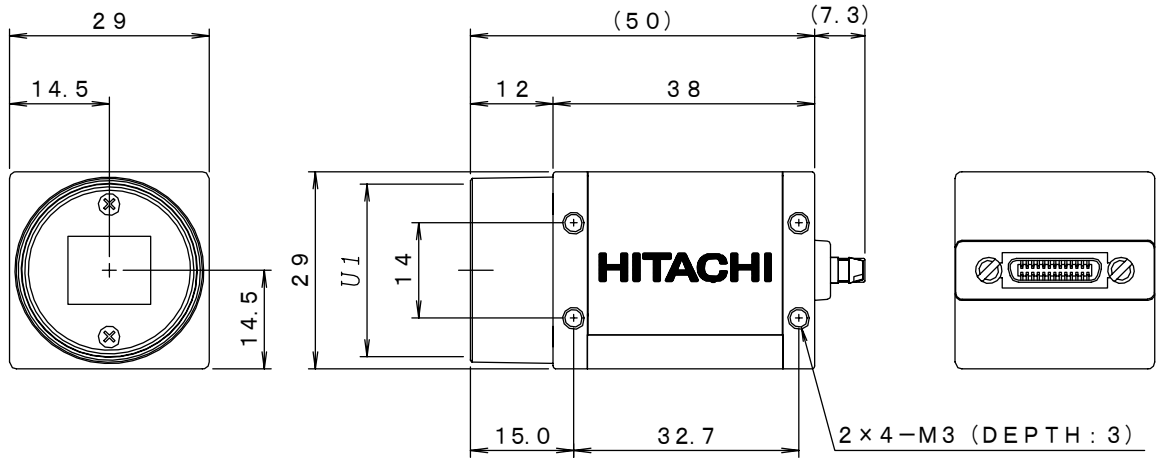
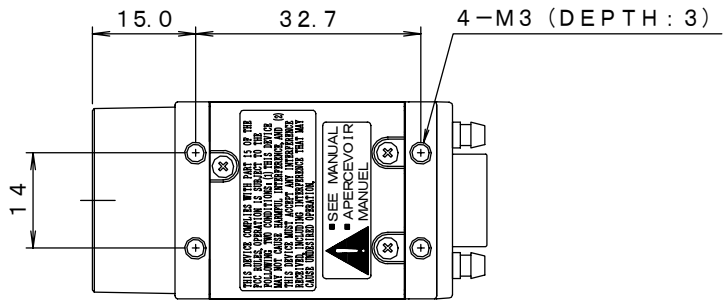
Pin No.1, No.10 --- GND

E400029612  
3/

DWN		.	.	KP-F31PCL/SCL Specifications	Hitachi Kokusai Electric	E400029612	Rev.		3/
DSGN		.	.						
CHKD		.	.						
APPD		.	.						

# External view(KP-F31PCL)

- MASS : APPROX 50 g
- COLOR: BLACK
- TORERANCE : ±0.5
- UNIT : mm



TENTATIVE

E400029612  
4/

DWN	/	.	.
DSGN	/	.	.
CHKD	/	.	.
APPD	/	.	.

KP-F31PCL/SCL  
Specifications

Hitachi Kokusai Electric

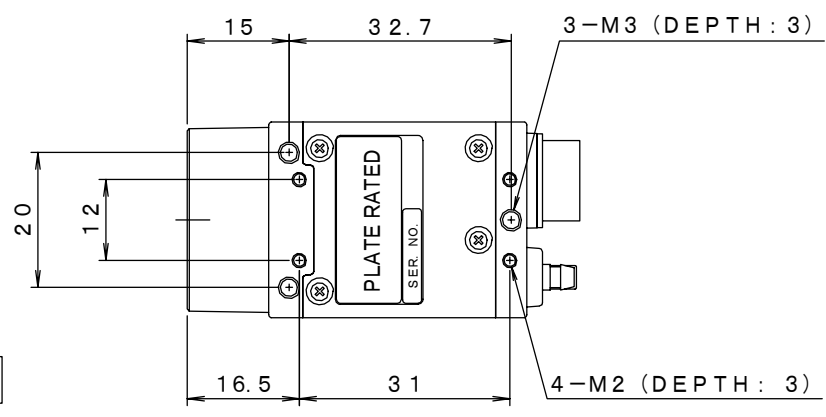
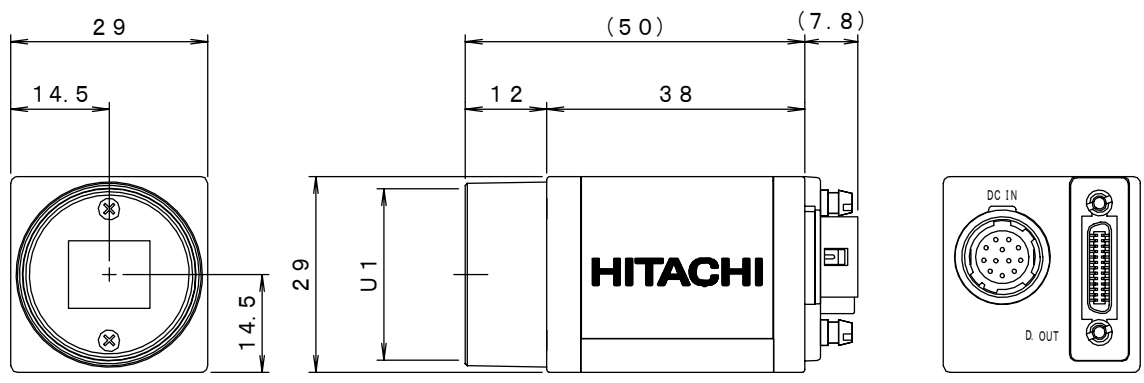
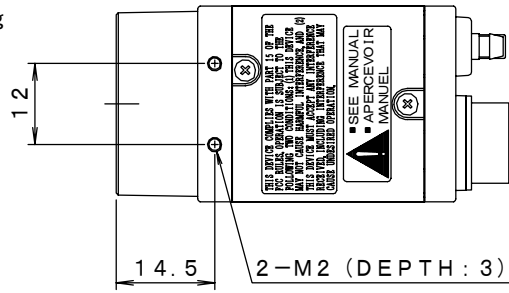
E400029612

Rev.

4/

# External view(KP-F31SCL)

- MASS : APPROX 50 g
- COLOR: BLACK
- TOLERANCE : ±0.5
- UNIT : mm



TENTATIVE

E400029612 5/

DWN	/	.	.	KP-F31PCL/SCL Specifications	Hitachi Kokusai Electric	E400029612		
DSGN	/	.	.			Rev.	/	5/
CHKD	/	.	.					
APPD	/	.	.					

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

**RoHS Compliant**  
 This product complies with the requirement of the RoHS(Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment) Directive 2002/95/EC

**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) 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.
- (7) In the case of camera trouble by miss wiring of cable, it will be considered as out of warranty.

E400029612 6/

DWN	/	.	.	KP-F31PCL/SCL Specifications	Hitachi Kokusai Electric	<b>E400029612</b>			
DSGN		.	.			Rev.	/	6 /	
CHKD		.	.						
APPD		.	.						

