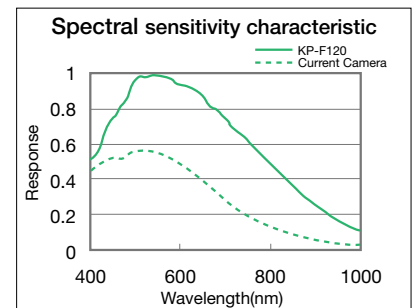


High resolution progressive scan monochrome CCD camera

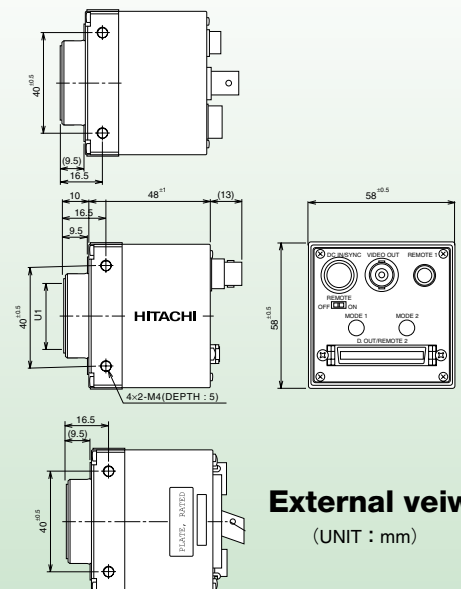
KP-F120



***Near infrared sensitivity,
Effective picture elements number 1.45 million,
Progressive scan with full pixel independent readout***

Features

- **Hi speed read out**
full pixel independent readout : 30 frames/second
Partial Scan : Read out up to over 190 frames/second max
- **High resolution**
High grade CCD with 1392(H)x1040(V) effective square lattice pixels.
- **Digital output and Analog output**
An EIA-644 digital output is provided.
Camera-Link optionally
- **Frame on demand**
An external trigger signal input can be used to capture an image at a desired timing for instant view or processing.
- **RS-232C Control**
Frame on demand, Partial Scan, Trigger input pulse invert, etc by RS-232C control or rear panel switch.



Specifications

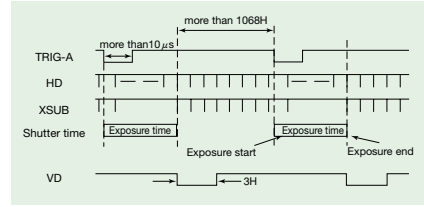
Pickup element	2/3-inch interline CCD
Effective pixels	1392(H)x1040(V)
Pixel pitch	6.45 μm(H)×6.45 μm(V) (square lattice)
Imaging area	8.98 mm(H)×6.71 mm(V)
Scanning system	Progressive
Aspect ratio	4 : 3
Frame rate	30frames/second (full pixel readout) to 190 frames/second (partial scan)
Horizontal scanning frequency	32.18 kHz
Synchronization	Internal/external (automatic switching)
Lens mount	C mount
Flange focal distance	17.526 mm
Video output	Digital output or analog output for image checking Digital output EIA-644 dual channel 10 bits, 28.8 MHz
External sync input	HD/VD TTL level negativeinput impedance: 1 kΩ Frequency deviation:±0.0005%
Electronic shutter speed	Selectable by external switches: Off (frame rate), 1/30, 1/125, 1/250, 1/1000, 1/2000, 1/4000, 1/10000, 1/50000 second.
Frame on demand	External switch setting off, fixed shutter, two trigger and one trigger
Power supply voltage	12 ± 1 VDC
Current consumption	400 mA approx.
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
Vibration endurance	29 m/s ² , 10 to 55 Hz 30 minutes each on XYZ axes
Shock endurance	294 m/s ² (vertical, horizontal, once each face)
External dimensions	58(W) × 58 (H) × 48 (D) mm
Mass	220 g (7.8 oz) approx

Frame-on-demand Function

With the Frame-on-demand function, moving objects can be captured at an optional or fixed exposure time by supplying a trigger pulse at an optional timing.

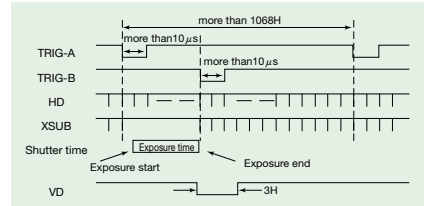
●Fixed shutter mode

When one trigger pulse (TRIG A) is supplied, exposure starts at the rising edge of the inputs pulse. Exposure time is fixed, and set by the electrical shutter switches on the camera.



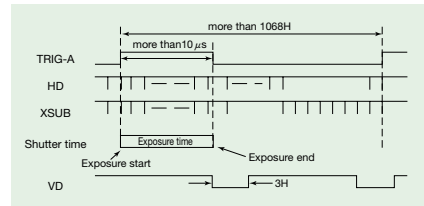
●Two trigger mode

When two trigger pulses (TRIG A and TRIG B) are supplied, exposure starts at the rising edge of the TRIG A pulse, and ends at the falling edge of TRIG B pulse. The period between the two pulses is exposure time.



●One trigger mode

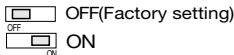
When one trigger pulse (TRIG A) is supplied, exposure starts at the rising edge of the inputs pulse, and ends at the falling edge of the inputs pulse. Then, the V-SYNC pulse is reset and picture are delivered immediately. The pulses width is the exposure time.



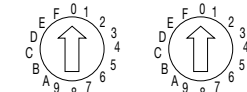
Rear panel switches

The rear panel includes switches for electronic shutter data, readout rate, and field on demand on/off and mode switches.

●Remote on/off switch



●Mode switch



MODE1, MODE2 position select

SW POS.	MODE1	MODE2
0	Normal mode	(1) 0 0 dB 1/30 16H
1	One trigger mode	1 1 dB 1/60 32H
2	Two trigger mode	2 2 dB 1/125 64H
3	Quad speed mode	3 3 dB 1/250 128H
4	Quad speed mode+One trigger mode	4 4 dB 1/1000 256H
5	One trigger mode	5 5 dB 1/2000 512H
6	Two trigger mode	6 6 dB 1/10000 512H
7	Quad speed mode+ One trigger mode	7 7 dB 1/50000 512H
8	Normal shutter mode	8 8 dB 1/50000 512H
9	Fixed shutter mode	9 9 dB 1/50000 512H
A	Fixed shutter mode	A 10 dB 1/50000 512H
B	Partial scan (Normal mode) (READ POS. : CENTER)	B 11 dB 1/50000 512H
C	Partial scan (Normal mode) (READ POS. : UPPER)	C 12 dB 1/50000 512H
D	Partial scan (One trigger mode) (READ POS. : CENTER)	D 13 dB 1/50000 512H
E	Partial scan (One trigger mode) (READ POS. : UPPER)	E 14 dB 1/50000 512H
F	Twice speed mode	F 15 dB 1/50000 512H

Pin connections

●DC input and sync connections Connections to DC IN and SYNC

PIN No.	Int. sync	Ext. sync		
		Ext. HD/VD	Fixed shutter	Two trigger
1	GND	GND	GND	GND
2	+12V	+12V	+12V	+12V
3	GND	GND	GND	GND
4	VIDEO	VIDEO	VIDEO	VIDEO
5	-	EXTHD (GND)	-	-
6	-	EXTHD (SIGNAL)	-	-
7	-	EXTVD (SIGNAL)	TRIG-A (SIGNAL)	TRIG-A (SIGNAL)
8	-	-	TRIG-B (GND)	TRIG-B (SIGNAL)
9	-	-	TRIG-B (SIGNAL)	-
10	GND	GND	GND	GND
11	+12V	+12V	+12V	+12V
12	-	EXTVD (GND)	TRIG-A (GND)	TRIG-A (GND)

●Remote(RS-232C control) cable pin connections

PIN No.	Signal name
1	-
2	RD
3	TD
4	Manual/remote
5	Ground
6	-

●Digital out connector Connector Hirose DX10G1M-50S

PIN No.	Signal name	PIN No.	Signal name	PIN No.	Signal name
1	DATA DB-D0(+)	2	DATA DB-D0(-)	26	DATA DA-D0(+)
2	DATA DB-D1(+)	3	DATA DB-D1(-)	27	DATA DA-D0(-)
3	DATA DB-D2(+)	4	DATA DB-D2(-)	28	DATA DA-D1(+)
4	DATA DB-D3(+)	5	DATA DB-D3(-)	29	DATA DA-D1(-)
5	DATA DB-D4(+)	6	DATA DB-D4(-)	30	DATA DA-D2(+)
6	DATA DB-D5(+)	7	DATA DB-D5(-)	31	DATA DA-D2(-)
7	DATA DB-D6(+)	8	DATA DB-D6(-)	32	DATA DA-D3(+)
8	DATA DB-D7(+)	9	DATA DB-D7(-)	33	DATA DA-D3(-)
9	DATA DB-D8(+)	10	DATA DB-D8(-)	34	DATA DA-D4(+)
10	DATA DB-D9(+)	11	DATA DB-D9(-)	35	DATA DA-D4(-)
11	DATA DB-D10(+)	12	DATA DB-D10(-)	36	DATA DA-D5(+)
12	DATA DB-D11(+)	13	DATA DB-D11(-)	37	DATA DA-D5(-)
13	DATA DB-D12(+)	14	DATA DB-D12(-)	38	DATA DA-D6(+)
14	DATA DB-D13(+)	15	DATA DB-D13(-)	39	DATA DA-D6(-)
15	DATA DB-D14(+)	16	DATA DB-D14(-)	40	DATA DA-D7(+)
16	DATA DB-D15(+)	17	DATA DB-D15(-)	41	DATA DA-D7(-)
17	DATA DB-D16(+)	18	DATA DB-D16(-)	42	DATA DA-D8(+)
18	DATA DB-D17(+)	19	DATA DB-D17(-)	43	DATA DA-D8(-)
19	DATA DB-D18(+)	20	DATA DB-D18(-)	44	DATA DA-D9(+)
20	DATA DB-D19(+)	21	DATA DB-D19(-)	45	DATA DA-D9(-)
21	TX2	22	RX2	46	CLK OUT(+)
22	GND	23	GND	47	CLK OUT(-)
23	GND	24	GND	48	VD OUT(+)
24	HD OUT(+)	25	HD OUT(-)	49	VD OUT(-)
25	HD OUT(+)	50	HD OUT(-)	Shield	GND

Composition

- Camera (with infrared blocking filter)
- Operating instructions

Optional accessories

- Tripod adaptor TA-F120
- 6 pin Remote plug HR10A-7P-6P
- 12 pin plug HR10A-10P-12S(01) (23810AX)
- D. OUT connector (50pins) DX30AM-50P
- Junction box *JU-F1(23832AX)
* Note : Assembly type made to order JU-M1(23831AX)
- Dummy glass(ARCOated) ARC1214(XMD0009)
- Camera cable

	Molded type	Assembly type
2 m	C-201-KSM	C-201KS
5 m	C-501KSM	C-501KS
10 m	C-102KSM	C-102KS

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Specification are subject to change without notice.