

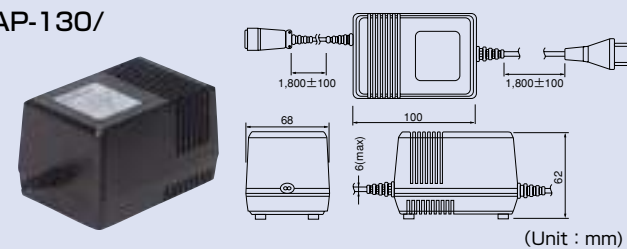
## Specifications

Model	KP-F3/KP-F3W
Imaging device	Progressive scan inter-line CCD
No. of pixels	699 (H) x 503 (V)
Pixel size	7.4 μm (H) x 7.4 μm (V)
No. of effective pixels	647 (H) x 485 (V)
Sensing area	4.79 mm (H) x 3.59 mm (V)
Signal format	EIA/Progressive scan system
Lens mount	C-mount
Flange focal distance	17.526 mm
Hor. scanning frequency	15.734 kHz (KP-F3)/31.468 kHz (KP-F3W)
Vert. scanning frequency	59.94 Hz/29.97 Hz
Sync system	Internal/external (Automatic switching)
Int. sync scanning system	KP-F3 : 1 : 2:1 interlace (1/60 s.) N : Non-interlace (1/30 s.) KP-F3W : 1 : 2:1 interlace (1/120 s.) N : Non-interlace (1/60 s.)
External sync input	HD/VD: 2 to 6 Vp-p, negative, Input impedance: 1 kΩ, Frequency deviation: ± 1%
Video output	1.0 Vp-p/75 Ω, unbalanced, Video: 0.7 Vp-p, sync: 0.3 Vp-p, negative
Resolution	500 TVL (H), 485 TVL (V)
Sensitivity	400 lx, f/5.6, 3200 K
Minimum illuminator	0.2 lx, f/1.4, AGC=ON, Gamma=ON w/o IR cut filter
Signal-to-noise ratio	56 dB
Electronic shutter speed	KP-F3 : 1/100 s. to 1/8000 s. KP-F3W : 1/200 s. to 1/16000 s. OFF (normal exposure)/Settable to any of the above modes by internal switches. Set to OFF at factory.
Gamma correction	Settable to 1 or correction by internal switches. Set to OFF at factory.
Frame/Field-On-Demand function	Settable to ON/OFF by internal switches. Settable to ONE trigger mode or fixed shutter mode. Set to OFF at factory.
Supply voltage	12 VDC ± 1 V
Power consumption	1.4 W approx.
Ambient conditions	Operating: 10 to 50 °C, 90 %RH or less Storage: -20 to 60 °C, 70 %RH or less
Anti-vibration	98 m/s <sup>2</sup> (10 to 60 Hz / amplitude: 0.98 mm const., 60 to 200 Hz/acceleration const., amplitude: variable, 10 to 200 Hz/XYZ, one sweep each, duration: 30 min. each)
Anti-shock	686 m/s <sup>2</sup> (Once each, top/bottom/left side/right side)
Dimensions	29 (W) x 29 (H) x 62 (D) mm
Mass	100 g approx.

Note: When the camera is used continuously, ambient temperature should be at 40°C or less to ensure stable performance.

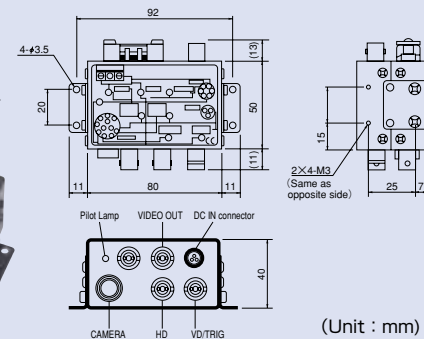
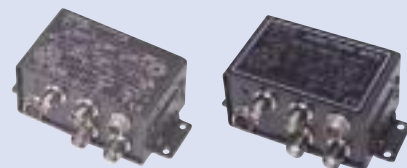
### AC Adaptor, AP-130/UD-240A

The AP-130 or UD-240A is used to supply 12VDC power to the camera via the JU-F1 Junction Box. (3-pin power output connector)

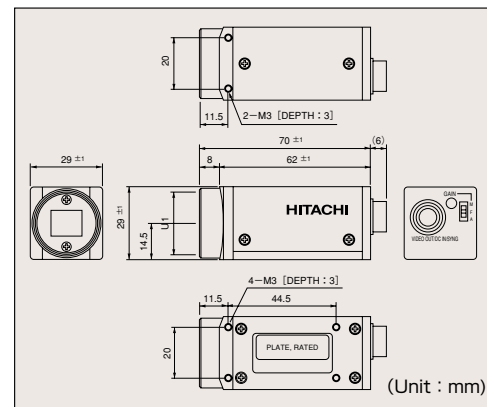


### Junction Box, JU-F1 or JU-M1A

Connect to a camera, using a camera cable.



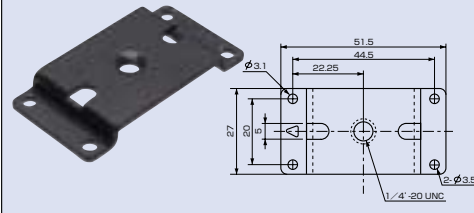
## Dimensions



## Optional Accessories

### Tripod Adaptor, TA-F3

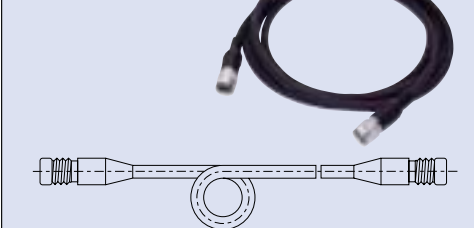
Use the tripod adaptor when fixing a camera with the screws for a tripod. Fix the tripod adaptor to the camera with the supplied screws (M3x6, 4pcs).



### 12-pin Plug HA10A-10P-12S(O1)



### Camera Cable



	Mould Type	Assembly Type	Shield Type
2 m	C-201KSM	C-201KS	C-201KSS
5 m	C-501KSM	C-501KS	C-501KSS
10 m	C-102KSM	C-102KS	C-102KSS

\*Assembly type and shield type are manufactured upon receipt of order.

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



CERTIFICATE No. JMI-0082  
ISO 9001/BS 5750Pt1  
EN 29001/JIS Z9901

## Progressive Scan B/W Camera

# KP-F3/F3W

Progressive Scan System

Double Speed Progressive Scan System



Actual size



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Specification are subject to change without notice.

The Hitachi KP-F3/F3W are progressive scan type black-and-white cameras using a 1/3-inch CCD sensor. The KP-F3/F3W features high performance, high sensitivity and high resolution. The KP-F3/F3W are provided with various functions including a multi-step electronic shutter, external sync (HD/VD), and Frame/Field-On-Demand function. A picture most suitable for image processing systems is ensured thanks to the use of CCD having square pixel.

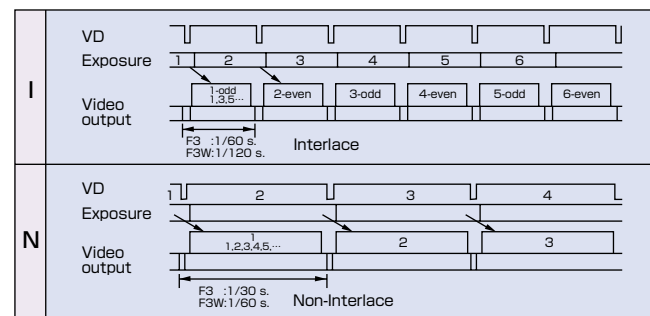
## Major features

### Frame shutter function

With the frame shutter function, higher resolution in the vertical direction is ensured for moving objects, compared with the conventional shutter function.

### Frame output

The signal is read out by 1/30 s progressive scan for the KP-F3 and 1/60 s for the KP-F3W. (N:Non-interlace)

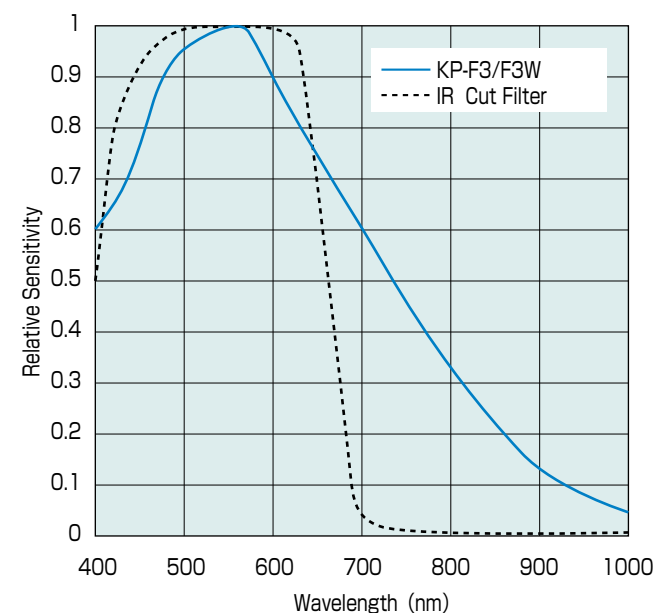


### High resolution

The horizontal resolution of 500TV lines is ensured by using a high density CCD.

### Spectral sensitivity characteristics

With the built-in IR cut filter, the KP-F3/F3W offers the spectral characteristic shown by the dotted lines. When the IR cut filter is removed, the spectral characteristic of up to infrared region is obtained.



### Multi-step electronic shutter function

Eight shutter speeds can be selected from 1/100 to 1/8000 seconds. (KP-F3W: 1/200 s. to 1/16000 s.)

### Internal or external sync mode/Interlace or non-interlace mode available

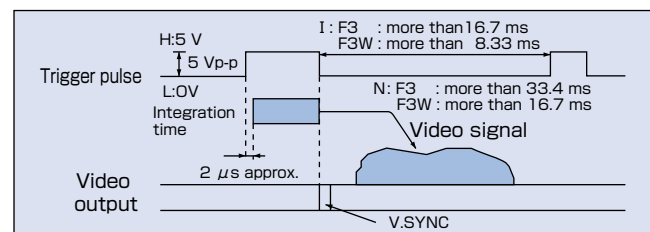
The sync mode and the scanning mode are automatically switched according to the supplied sync signal.

### Frame/Field-On-Demand function

With the Frame/Field-On-Demand function, moving objects can be captured at an optional timing. Capture time can be adjusted by the external trigger signal and the shutter function.

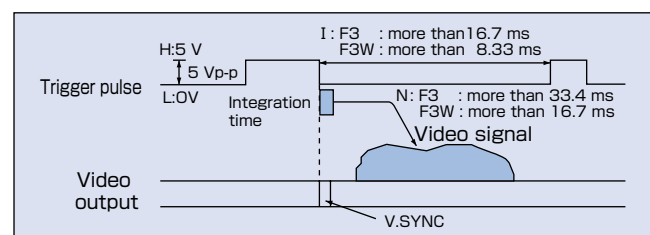
#### ●ONE trigger mode

When one trigger pulse (TRIG) is supplied, exposure starts at the rising edge of the input pulse, and ends at the falling edge of the pulse. Then, the V-SYNC pulse is reset and pictures are delivered immediately. Pulse width is exposure time.



#### ●Fixed shutter mode

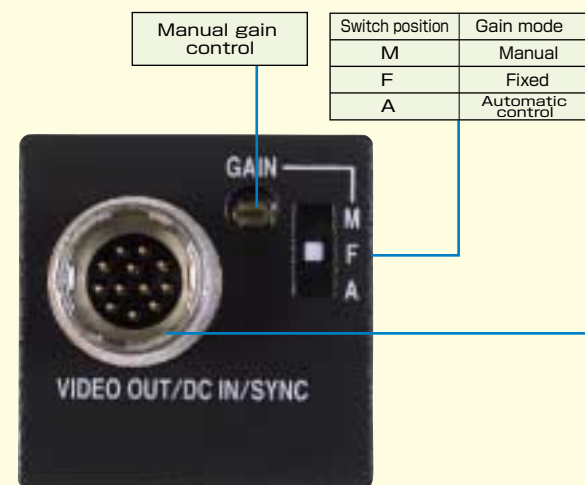
When one trigger pulse (TRIG) is supplied, exposure starts at the rising edge of the input pulse. Exposure time is fixed, and set by the electronic shutter switches on the camera. Video signals are delivered immediately after exposure time ends.



Speed	F3	F3W	ONE trigger	1/2000	1/4000	1/8000	1/16000
				1/4000	1/8000	1/16000	1/32000
Switch setting							

## Rear Panel

## Switches and Input/Output Connector



Switch position	Gain mode
M	Manual
F	Fixed
A	Automatic control

Pin Arrangement of VIDEO OUT/DC IN/SYNC Connector (12-pin)

PIN No.	Internal sync	External sync		
		HD/VD	Frame/Field-On-Demand	
			ONE trigger	Fixed shutter
1	GND	GND	GND	GND
2	+12 V	+12 V	+12 V	+12 V
3	VIDEO GND	VIDEO GND	VIDEO GND	VIDEO GND
4	VIDEO output (signal)	VIDEO output (signal)	VIDEO output (signal)	VIDEO output (signal)
5	-	HD GND	-	-
6	-	HD input (signal)	-	-
7	-	VD input (signal)	TRIG input (signal)	TRIG input (signal)
8	GND	GND	GND	GND
9	NC	NC	NC	NC
10	GND	GND	GND	GND
11	+12 V	+12 V	+12 V	+12 V
12	-	VD GND	VD GND	VD GND

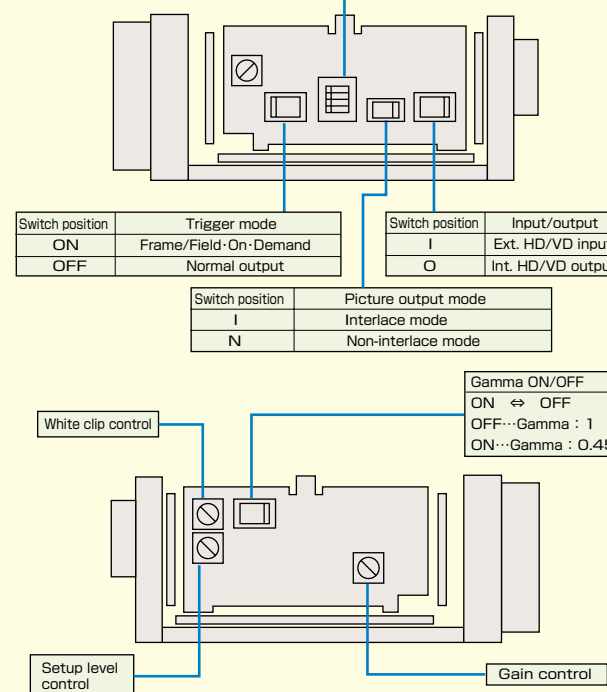
Note: Supply 12 VDC in the range between 11 and 13 V.

## Internal Switch Setting

### Electronic shutter speed setting

Speed	F3	F3W	OFF	1/100	1/250	1/500
				1/200	1/500	1/1000
Switch position						
Speed	F3	F3W	1/1000	1/2000	1/4000	1/8000
			1/2000	1/4000	1/8000	1/16000
Switch position						

The faster the shutter speed, the more the effect. However, sensitivity is lowered. In this case, it is needed to adjust the lens iris or to increase the illumination. When the shutter is used, the flicker of the objects can be enhanced. In this case, use flickerless illumination like DC lamp.



## Timing Chart

