



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.

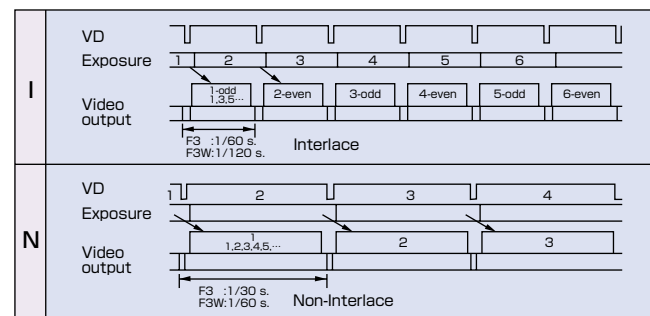
## Major features

### 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)

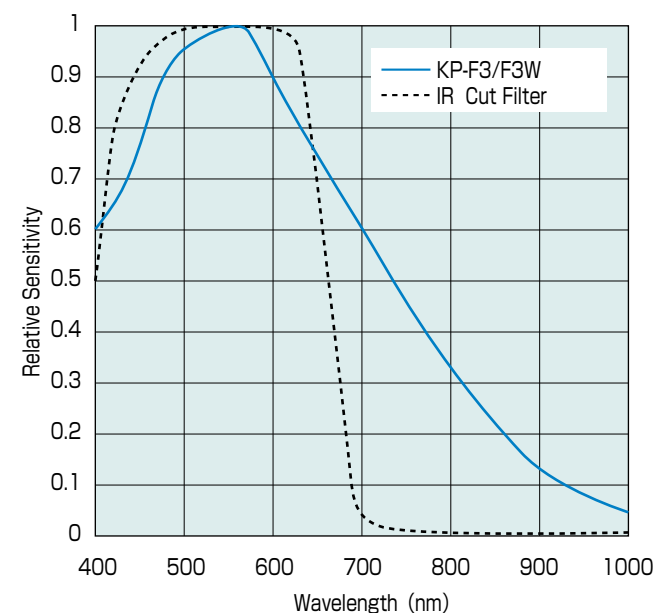


### High resolution

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

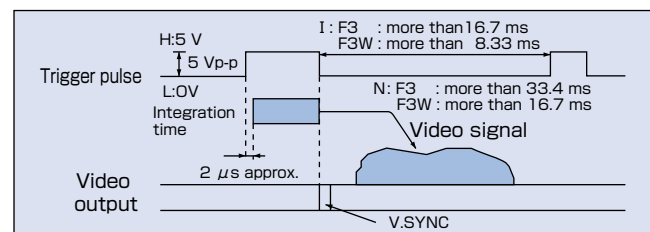
The sync mode and the scanning mode are automatically switched according to the supplied sync signal.

### 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.

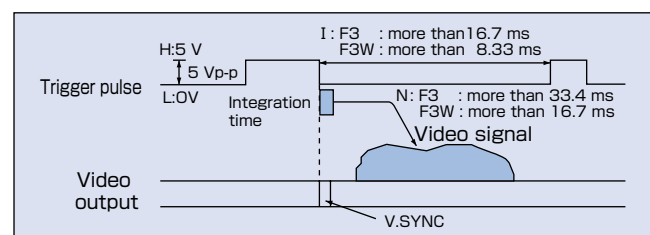
#### ●ONE trigger mode

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

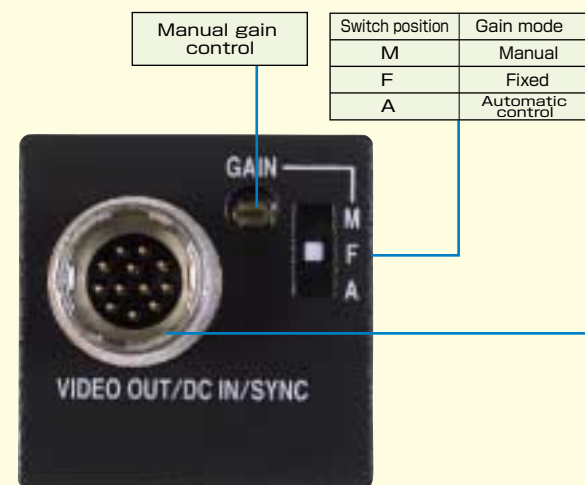
When one trigger pulse (TRIG) is supplied, exposure starts at the rising edge of the input pulse. Exposure time is fixed, and set by the electronic shutter switches on the camera. Video signals are delivered immediately after exposure time ends.



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

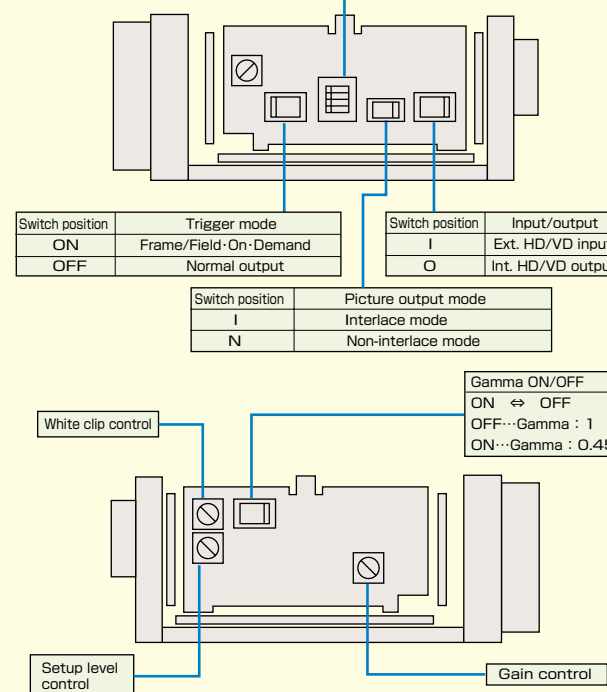
Note: Supply 12 VDC in the range between 11 and 13 V.

## Internal Switch Setting

### Electronic shutter speed setting

Speed	F3	F3W	OFF	1/100	1/250	1/500	1/1000
Switch position							
Speed	F3	F3W	1/1000	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

