

Progressive Scan Monochrome CCD Camera

# KP-F3/F3W

# HITACHI

Progressive Scan System

Double Speed Progressive Scan



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.

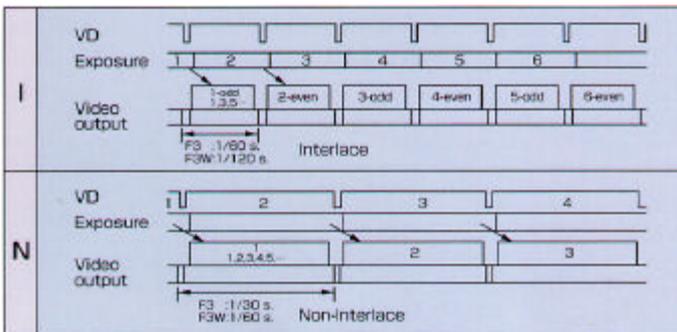
## Major Features

### 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 in 1/30th second progressive scan for the KP-F3 and 1/6th second for the KP-F3W. (N = non-interlace).

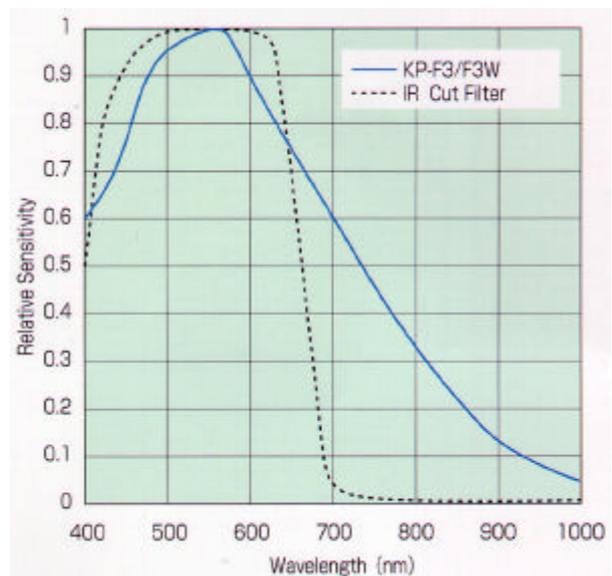


### High Resolution

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 / 8,000 seconds (KP-F3W: 1/200th to 1/16,000th)

# Major Features

**Internal or External sync mode**

**Interlace or non-interlace mode available**

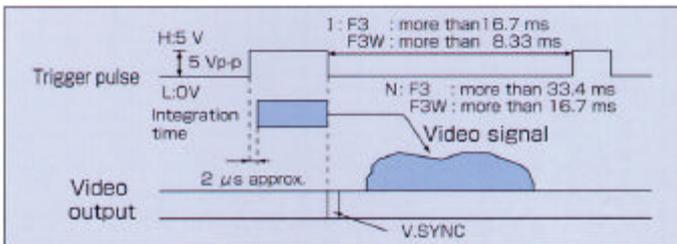
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**Field-On-Demand Function**

With the Frame/Field-On-Demand function, moving objects can be captured at an optional timing Capture time

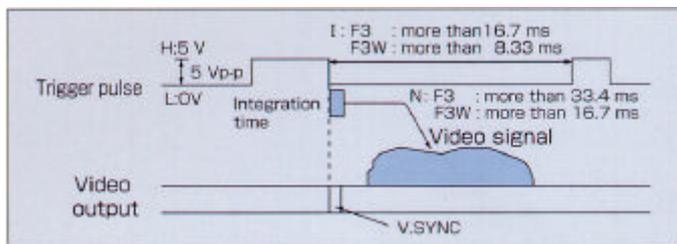
● **One trigger mode**

When one trigger pulse 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



● **Fixed shutter mode**

When one trigger pulse 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.

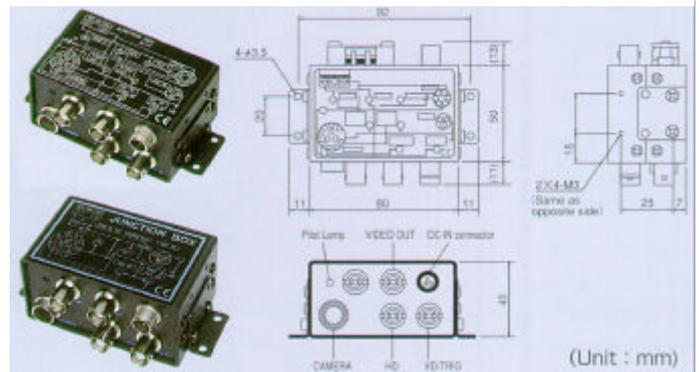


| Speed          | F3<br>F3W | ONE trigger | 1/2000 | 1/4000 | 1/8000  | 1/16000 |
|----------------|-----------|-------------|--------|--------|---------|---------|
|                |           |             | 1/4000 | 1/8000 | 1/16000 | 1/32000 |
| Switch setting |           |             |        |        |         |         |

# Opional Accessories

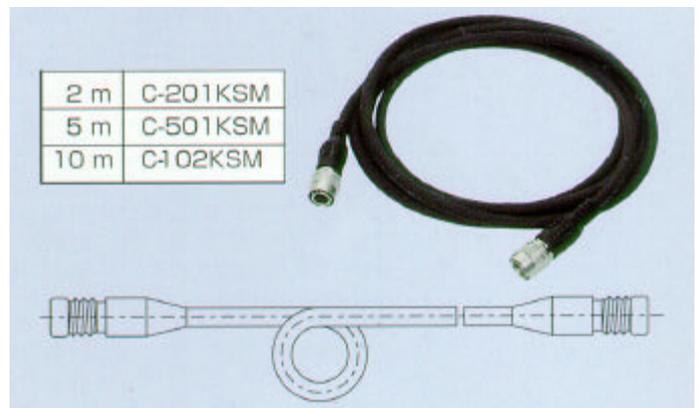
## Junction Box, JU-F1 or JU-M1A

Connect to a camera, using camera cable



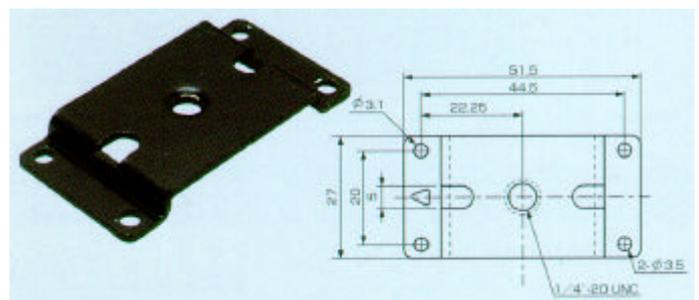
## Camera Cable

2, 5 or 10 metres



## Tripod Adaptor

TA-F3



## Power Supply

PSU-130/12P AC mains to 12 volts dc

### Rear Panel

Manual gain control

GAIN

VIDEO OUT/DC IN/SYNC

### Switches and Input/Output Connector

| Switch position | Gain mode         |
|-----------------|-------------------|
| M               | Manual            |
| F               | Fixed             |
| A               | Automatic control |

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

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

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

# KP-F3 / KP-F3W Specification

**Sensor pick up device:** 1/3" progressive scan interline transfer CCD

**Sensing scanning area:** 4.79 (H) x 3.59 (V) mm

**Total number of pixels:** 699(H) x 503(V)

**Number of effective pixels:** 647 (H) x 485 (V)

**Pixel pitch:** 7.4 (H) x 7.4 (V)  $\mu$ m

**Scanning system KP-F3:** 2:1 interlaced (1/60th second) or non-interlaced (1/30th second)

**Scanning system KP-F3W:** 2:1 interlaced (1/120th second) or non-interlaced (1/60th second)

**Horizontal scanning frequency:** 15.734 kHz (KP-F3) / 31.468 kHz (KP-F3W)

**Vertical scanning frequency:** 59.94Hz/29.97Hz

**Signal standard:** EIA/Progressive scan

**Sync system:** Internal or external (automatic switching)

**External sync input:** HV/VD 2 to 6 volts p-p input impedance 1kohm, frequency deviation  $\pm$ 1%, negative polarity

**Resolution:** 500 (H), 485 (V) TV lines

**Standard sensitivity:** 400 lux @ f5.6 (3200K)

**Minimum sensitivity:** 0.2 lux at f1.4 (with AGC on, gamma 0.45, without IR cut filter)

**Electronic shutter KP-F3:** off, 1/100th, 1/250th, 1/500th, 1/1,000th, 1/2,000th, 1/4,000th, 1/8,000th (selectable by internal switch)

**Electronic shutter KP-F3W:** off, 1/200th, 1/500th, 1/1,000th, 1/2,000th, 1/4,000th, 1/8,000th, 1/16,000 (selectable by internal switch)

**Gamma correction:** 0.45 or 1.0 (selectable by internal switch)

**Signal to noise ratio:** 56dB

**AGC:** Manual fixed or AGC (selectable by external switch)

**Video output:** Composite video and sync, 1.0 volt p-p 75 ohms unbalanced, 0.7volts p-p video and 0.3 volts sync negative.

**Field or Frame on demand mode:** Settable to On/Off by internal switches. Settable to ONE trigger mode or FIXED shutter mode.

**Lens mount:** C

**Flange focal distance:** 17.526 mm

**Ambient temperature and humidity:**

**Operating:** -10° C to +50°C, RH 90% or less

**Storage:** -20° C to +60°C, RH 70% or less

**Resistance to vibration:** 98m/s/s (10 to 60Hz amplitude: 0.98mm constant, 60 to 200Hz acceleration constant, amplitude: variable. 10 to 200Hz XYZ, one sweep each.duration: 30 min, each)

**Resistance to shock:** 686m/s/s (Once each, top, bottom, left side, right side)

**Dimensions:** 29(W)x29(H)x62(D)m

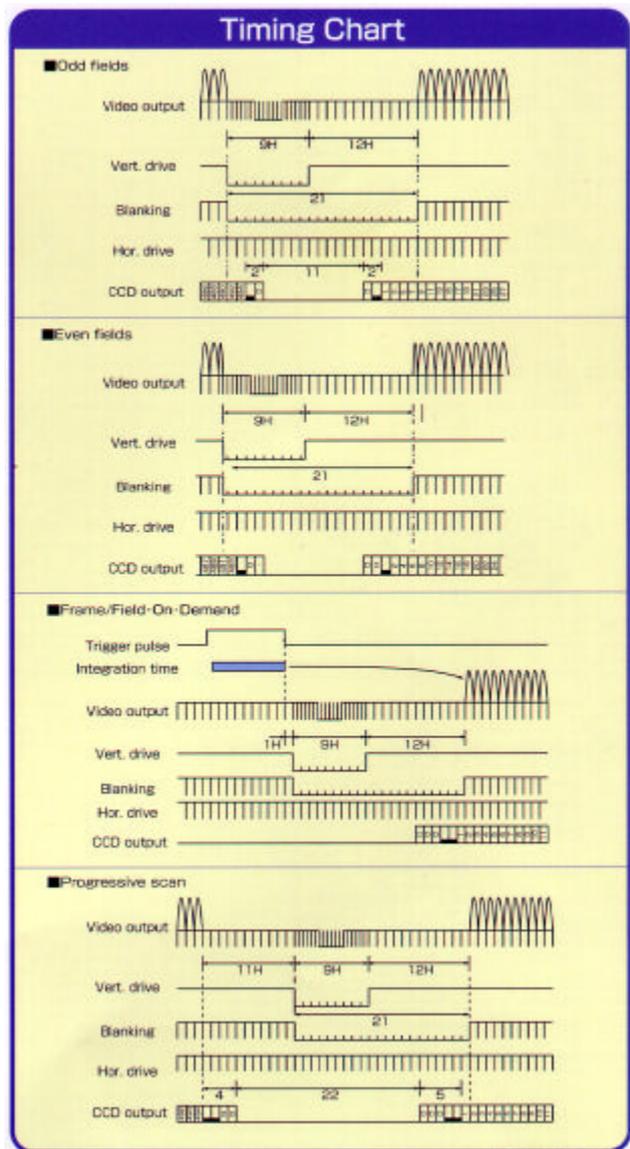
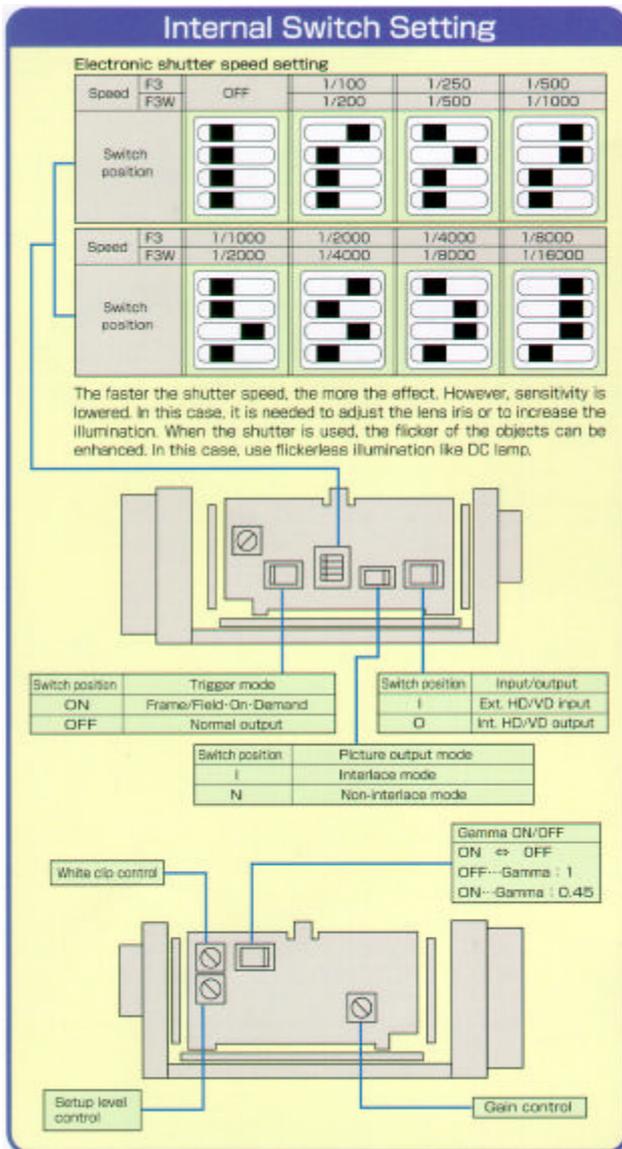
**Weight:** 100 grams (approx)

**Supply voltage:** 12 volts dc  $\pm$ 1 volt

**Current consumption:** 1.4 watts (approx)

**Composition:** Camera head (with IR cut filter), operation manual

**Design and specification are subject to change without notice**



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