

**KP-F3 Monochrome CCD Camera**  
**Progressive scan**  
**Specifications**

**1. Outline**

The Hitachi KP-F3 is a high performance self-contained black and white CCD camera suited for a wide variety of general purpose and specialized applications. The charge coupled device (CCD) imaging element is 1/3-inch size progressive scanning with independent readout of all picture elements (pixels).

In addition to high resolution and sensitivity, a broad array of functions, including multi-step electronic shutter, HD/VD external sync, field/frame on demand, switchable EIA/progressive scan video output and many more contribute to versatility that meets a wide range of needs.

The square pixel CCD also renders an image appropriate for image processing systems.

**2. Major features**

**1) Frame shutter**

The frame shutter function of this camera improves vertical resolution of moving objects in comparison to earlier designs.

**2) Frame output**

All pixels are read in 1/30 second (progressive scan).

**3) High resolution**

The high grade CCD has a total of 350,000 square lattice pixels of which effective pixels are 647 (H) × 485 (V).

**4) Multi-step electronic shutter**

Shutter speed is selectable in 8 steps from 1/100 to 1/8000 second.

**5) Internal/external sync, interlace/non-interlace**

The camera internally selects sync and scanning systems automatically according to external input presence, absence and type.

**6) Field/frame on demand**

External trigger signal input can instantly obtain an image from data captured at an arbitrary timing. The capture timing can be adjusted by the external trigger and shutter.

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DSGN	S. Kanetsubo	MAY 27 '99
CHK	M. Suguchi	MAY 27 '99
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Tokyo Japan

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### 3. Specifications

- 1) Imaging element ..... Progressive scan interline type CCD
- Total pixels ..... 699 (H) × 503 (V)
- Pixel size ..... 7.4 (H) × 7.4 μm
- Effective pixels ..... 647 (H) × 485 (V)
- 2) Imaging area ..... 4.79 (H) × 3.59 (V) mm (1/3-inch size)
- 3) Signal system ..... EIA/progressive scan
- 4) Lens attachment ..... C mount
- 5) Flange back ..... 17.526 mm (not adjustable)
- 6) Horizontal scanning frequency ..... 15.734 kHz
- 7) Vertical scanning frequencies ..... 59.94 Hz, 29.97 Hz
- 8) Sync system ..... Internal/external, automatic selection
- 9) Internal sync operating system ..... I 2:1 interlace (1/60 second)  
N Non-interlace (1/30 second)
- 10) External sync input ..... HD and VD 2 to 6 Vp-p negative  
Impedance 1 k Ω  
Frequency deviation ±1 %
- 11) Video output ..... 1.0 Vp-p 75 Ω unbalanced  
Video component 0.7 Vp-p  
Sync component 0.3 Vp-p negative
- 12) Resolution ..... 500 (H) × 485 (V) TV lines
- 13) Sensitivity ..... 400 lux, F5.6, 3200 K
- 14) Minimum object illumination ..... 0.2 lux, F1.4, AGC and gamma on,  
without infrared cut filter
- 15) Signal to noise ratio ..... 56 dB
- 16) Electronic shutter ..... Internal switch settings for off  
(standard exposure),  
1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000,  
1/8000 second. Factory setting is off.
- 17) Gamma correction ..... Internal switch setting for 1 or compensate.  
Factory setting is 1.
- 18) Sensitivity selection ..... Exterior switch for fixed, AGC, manual.  
Factory setting is Fix (fixed gain).
- 19) Field/frame on demand ..... Internal on/off switch.  
Selectable One trigger and fixed shutter modes.  
Factory setting is off.
- 20) Power supply voltage ..... 12 ±1 VDC

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- 21) Power consumption..... Approx. 1.4 W
- 22) Ambient temperature and humidity..... Operating     -10 to 50°C RH less than 90 %  
Storage           -20 to 60°C RH less than 70 %

**Caution:** For continued stable operation, the camera should be used under 40°C or less when it is used continuously for extended period of time.

- 23) Anti-vibration ..... 7G (10 to 60Hz, amplitude: 0.98mm constant, 60 to 200Hz, amplitude: variable) (10 to 150Hz, sweep:1 min., XYZ, 30 min.)
- 24) Resistance to shock ..... 70G (Drop test, once each top, bottom, left and right)
- 25) Dimensions ..... 29(W) × 29(H) × 62(L)mm
- 26) Mass..... 100g approx.

**4. Composition**

- 1) Camera body (with IR cut filter)
- 2) Operation manual

**5. Optional accessories**

- 1) Tripod adaptor    TA-F3
- 2) 12-pin plug       11R10A-10P-12S(01)
- 3) AC adaptor,       AP-130
- 4) Junction box     JU-F1 and JU-M1A
- 5) Dummy glass     ARC1214
- 6) Camera cables

	Mould type	Assy type	Shielded type
2m	C-201KSM	C-201KS	C-201KSS
5m	C-501KSM	C-501KS	C-501KSS
10m	C-102KSM	C-102KS	C-102KSS

Specify assembly or shielded type at time of order.

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### Caution

The specifications of this equipment are subject to change without notice for improvement. Prior to placing your order, be sure to confirm that these specifications are the latest ones.

Hitachi Denshi guarantee that the equipment shipped from our factory conforms to the Hitachi Denshi's standard warranty conditions and perform quality control within the range necessary to perform the warranty.

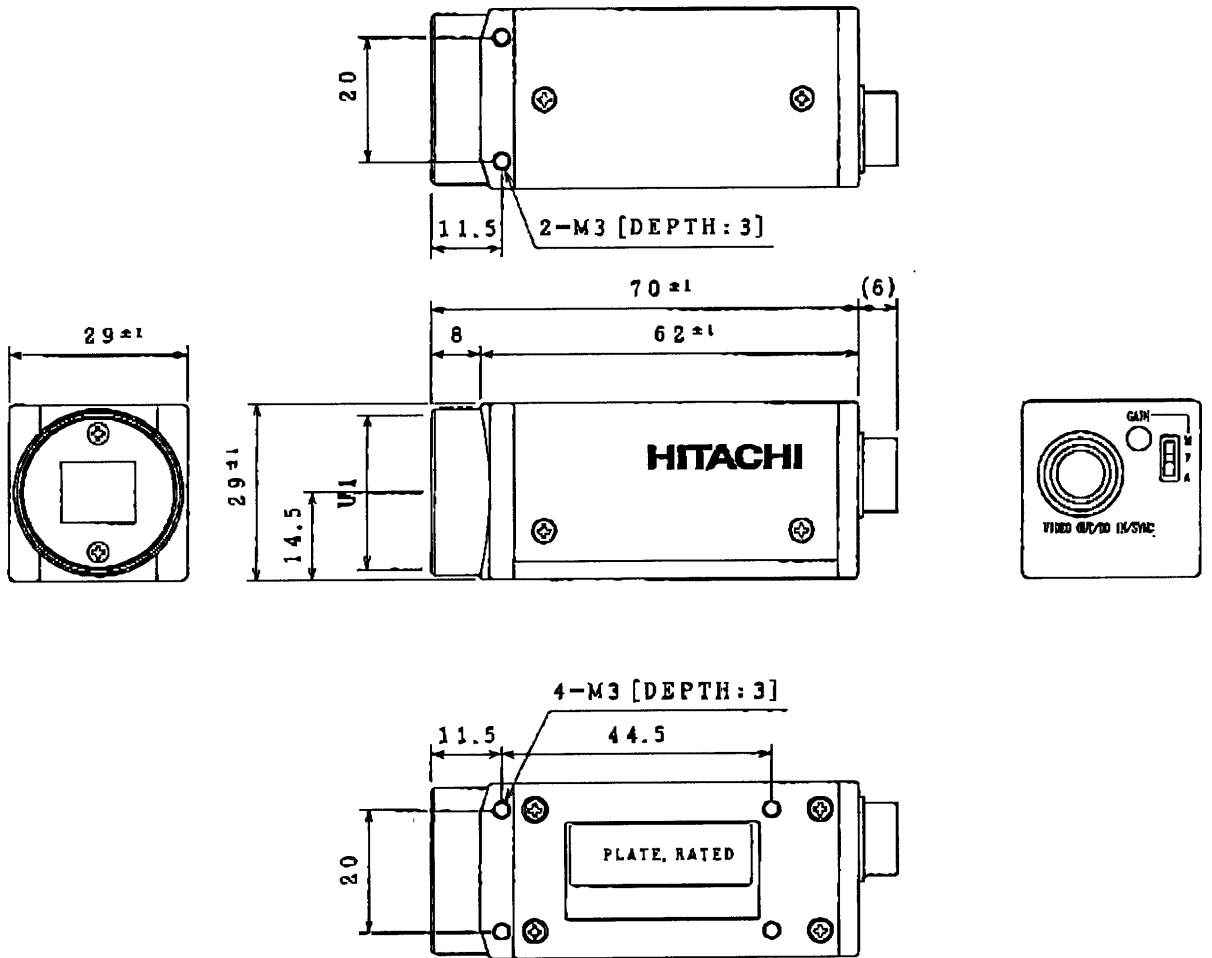
### Warranty and After-sales Service

- 1) The guarantee period is one year after the date of purchase. However, the defects due to erroneous use or intentional act are excluded.
- 2) As the defect after expiration of the guarantee period, Hitachi Denshi will repair the equipment if the intended function is restored by the repair work, and the cost is charged to a customer.
- 3) Hitachi Denshi is not liable for the losses caused when the equipment is used in a system used for business trades, production process, medical fields, crime prevention applications, etc.
- 4) The parts used in the equipment have their respective lives. The lives of such parts will be shortened under the environments of high temperature or high humidity.  
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.

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External view



Mass: approx. 100g

Color: Black

Unit: mm



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