KP-F2 A/B

Progressive scan, near infrared Monochrome CCD camera Specifications (preliminary)

1. General

The Hitachi KP-F2 is a full frame shutter black and white camera using a 1/3-inch CCD with sensitivity in the near infrared spectrum. The high performance camera boasts high resolution together with a broad array of functions, including multi-step electronic shutter, external horizontal and vertical drive (HD & VD) synchronization, field on demand and non-interlace scanning. Suitability for image processing is provided by the square lattice picture element (pixel) type CCD. The camera is available with a choice of two video output types (specify on order).

KP-F2 A

- Type A: Full pixel frame output at 1/30 second. (Frame output : 1N)
- Type B: Simultaneous output of separate signals from odd and even horizontal lines in 1/60 second. (Horizontal 2 lines simultaneous output : 2N)

2. Outstanding features

1) Near infrared pickup

CCD peak sensitivity in 800 nanometer (nm) region is ideal for image processing under near infrared illumination.

2) High resolution

The square lattice type CCD has 658 (H) × 496 (V) effective pixels.

3) Frame shutter

The frame shutter function improves vertical resolution of moving objects.

4) Frame output (1N)

Independent full pixel signal at 1/30 second (from Video Out 1)

5) Simultaneous horizontal 2 lines output (2N)

The non-interlaced signals of odd and even horizontal lines are obtained independently and simultaneously in 1/60 second. Two simultaneous video signals can be obtained from either the rear panel multipin connector or 2 BNC lines (the multipin connector and BNC outputs cannot be used simultaneously).

6) Multi-step electronic shutter

The shutter speed can be selected in 8 steps from 1/60 to 1/8000 second.

7) Field on demand

By providing an external trigger input, an image input at a desired timing can be obtained instantly at the output. The input time can also be adjusted by the trigger and shutter.

3. Specifications

1)	Imaging device	1/3-inch frame transfer CCD
	Total pixels	680 (H) × 500 (V)
	Effective pixels	658 (H) × 496 (V)
	Pixel size	7.4 (H) × 7.4 (V) μm (square pixel arrangement)
2)	Sensing area	4.87 (H) × 3.67 (V) mm
3)	Scanning system	Type A: Progressive (1/30 second) Type B: Non-interlace (1/60 second)
4)	Horizontal scanning frequency	15.734 kHz
5)	Vertical scanning frequency	Type A: 29.97 Hz Type B: 59.94 Hz
6)	Synchronization	Internal or external (automatic switching)
7)	Lens fitting	C mount
8)	Flangeback	17.526 mm
9)	Internal sync operation	Type A: 525 horizontal lines Type B: 262 horizontal lines (1 output line)
10)	External sync operation	Horizontal and vertical drive 4 to 6 Vp-p, negative Input impedance: 1 kΩ, frequency accuracy: ±1 %
11)	Video output	1.0 Vp-p 75Ω unbalanced
	Video component	0.7 Vp-p
	Sync component	0.3 Vp-p, negative
12)	Sensitivity	30 lux, F4, 3200 K
13)	Minimum illumination	0.3 lux, F4, AGC and γ on, w/o infrared cut filter
14)	Signal to noise ratio	50 dB

15) Electronic shutter	Selectable off (normal), 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000 or 1/8000 second Factory setting is off.
16) Gamma correction	Internal switch settable for 1 or correction. Fixed γ settable for 2 video lines. Factory setting is 1.
17) Automatic gain control	Video Out 1 only settable for fixed gain or AGC. External switch settable. Factory setting is fixed gain.
18) Field-on-Demand function	ON/OFF Externally switchable ONE trigger and Fixed shutter mode selectable by external switch (Factory setting: OFF)
19) Sensitivity selection	
Video Out 1	External switch settable for fixed gain or external control.
Video Out 2	Fixed gain Both lines fine adjustable by internal controls. Factory setting is fixed gain.
20) Power supply voltage	12 ±1 VDC
21) Power consumption	Approx. 200 mA
22) Ambient temperature and relative humidity	
Operating	0 to 40 ℃, less than 90 % RH
Storage	-10 to 50 ℃, less than 70 % RH

Notice : If used continuously, be sure that the ambient temperature is below 40 ℃ for long term reliability.

23) Vibration endurance test	7 G 10 to 60Hz amplitude: 0.98mm constant 60 to 200 Hz: fixed acceleration, variable amplitude 10 to 200 Hz: 1 minute sweep, 30 minutes each in 3 axes
24) Shock endurance test	70 G (once each: up, down, left, right)
25) Dimensions	44 (W) × 44 (H) × 87 (D) mm
26) Mass	Approx. 170 g

4. Composition

1) Camera (With dummy glass, AR coated)
2) Operation manual

5. Optional accessories

1)	Tripod adapter	TA-M1
2)	12-pin plug	HR10A-10P-12S(01)
3)	6-pin plug	HR10A-7P-6P(01)
4)	AC adapter	AP-130
5)	Junction box	JU-F1
6)	Camera cable	2m: C-201KSM
		5m: C-501KSM
		10m: C-102KSM

6. Spectral sensitivity response