

HITACHI CCD CAMERAS KP-M2A/M3A

Model KP-M2A CCD Camera :
The 1/2-inch CCD sensor, developed using the state-of-the art technology

Model KP-M3A CCD Camera :
The 1/3-inch CCD sensor, developed using the state-of-the art technology



These high-performance CCD cameras are designed to offer excellent sensitivity and superb resolution. Equipped with a diversity of functions such as multiple step electronic shutter, field on demand, integration mode selection, external HD/VD synchronization, non-interlace scanning, etc., these CCD cameras can be used with Machine vision or IC bonder.

Features

● **Compact, lightweight**

The KP-M2A/M3A are CCD cameras which provide versatile functions and superb performance. They can deliver video signals only by supplying 12 V DC voltage.

● **High resolution**

Horizontal resolution...EIA : 570 TV lines

(CCIR : 560 TV lines)

Vertical resolution...EIA : 485 TV lines

(CCIR : 575 TV lines)

● **Multiple-step electronic shutter function**

Provided with the multiple-step electronic shutter function. Eight electronic shutter speeds are selectable in a range of 1/100 sec (CCIR : 1/120 sec) to 1/10,000 sec.

● **Internal/external synchronization and inter laced/non-interlaced**

A synchronization mode and scanning mode are

automatically selected in the camera circuit by the kind of supplied sync signal.

● **Field-on-demand function**

A picture acquired at an optional timing using an external trigger signal be displayed. Also, a picture acquisition time adjustable through use of external trigger signal and shutter function.

● **Frame/field integration mode selectable**

The frame or field integration mode can be selected. In combination with scanning system and electronic shutter speed selection, the desired video signal is obtained.

● **Vibration-proof**

The die-cast aluminum is used to ensure vibration-proof performance.

Major specifications

Imaging device	Interline CCD sensor
Total number of pixels	EIA : 811 (H) × 508 (V) CCIR : 795 (H) × 596 (V)
Pixel pitch	KP-M2A EIA : 8.4 (H) × 9.8 (V) μm KP-M3A EIA : 6.35 (H) × 7.4 (V) μm KP-M2A CCIR : 8.6 (H) × 8.3 (V) μm KP-M3A CCIR : 6.5 (H) × 6.25 (V) μm
Number of effective pixels	EIA : 768 (H) × 494 (V) CCIR : 752 (H) × 582 (V)
Imaging area	KP-M2A EIA : 6.45 mm × 4.84 mm (1/2-inch) KP-M2A CCIR : 6.47 mm × 4.83 mm (1/2-inch) KP-M3A EIA : 4.88 mm × 3.66 mm (1/3-inch) KP-M3A CCIR : 4.89 mm × 3.64 mm (1/3-inch)
Signal system	Conforming to EIA/CCIR signal format (at normal operation)
Lens mounting	C mount
Flange focal distance	17.526 mm (not an adjustable)
Horizontal scanning frequency	EIA : 15.734 kHz CCIR : 15.625 kHz
Vertical scanning frequency	EIA : 59.94 Hz CCIR : 50 Hz
Synchronization	Automatic changeover of internal/external synchronization
Internal sync scanning	2:1 interlaced, 525 horizontal lines (CCIR : 625 lines) fv = 2 fh/525 (CCIR : lines)
External sync input	HD/VD, 2 to 6 Vp-p, negative polarity Input impedance : 1 kΩ, Frequency deviation : ±1 %
Number of horizontal lines	2:1 interlaced
Allowable for external synchronization	EIA : 521 to 2047 lines/2FLD, 1FLD : (61 to 15 Hz) CCIR : 621 to 2047 lines/2FLD, 1FLD : (51 to 15 Hz) Non-interlaced EIA : 260 to 1023 lines/1FLD, 1FLD : (61 to 15 Hz) CCIR : 310 to 1023 lines/1FLD, 1FLD : (51 to 15 Hz)

Video output	1.0 Vp-p 75 Ω unbalanced Video component : 0.7 Vp-p Sync component : 0.3 Vp-p negative polarity
Horizontal/vertical resolution	EIA : 570 TV lines (H) /485 TV lines (V) CCIR : 560 TV lines (H) /575 TV lines (V)
Sensitivity	Under illumination of 400 lx, F8, 3200 K
Minimum illumination	0.3 lx, F1.4 AGC:ON, Gamma:ON, without IR filter
SN ratio	56 dB
Electronic shutter	1/10000, 1/4000, 1/2000, 1/1000, 1/500, 1/250, 1/125, 1/120 (CCIR), 1/100 (EIA) sec In OFF state : Normal exposure Selectable external switch mode
Integration mode	Field/frame integration mode, Selectable by external switch setting
Gamma correction	Gamma = 1.0 or correction, Selectable by internal switch
AGC	Pixed gain or AGC, Selectable by internal switch setting
Field-on-demand function	Turned on/off with internal switch
Restart/reset function	Turned on/off with chip component switching
Power requirement	12 V DC ±1 V, 180 mA approx
Ambient temperature and humidity	Operating : -10 to +60 °C, Less than 90 % RH Storage : -20 to +60 °C, Less than 70 % RH
Vibration resistance	68.6 m/s ² max (10 to 60 Hz, amplitude : constant at 0.98 mm) (60 to 200 Hz, amplitude : variable) (10 to 200 Hz, sweeping for one minute, Each of X, Y and Z directions for 30 minutes)
Dimensions and mass	44 (W) × 29 (H) × 72 (D) mm 120 g approx

Standard comption

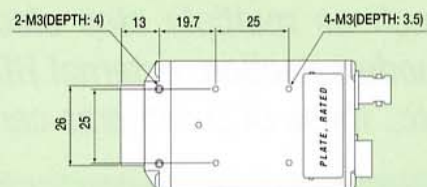
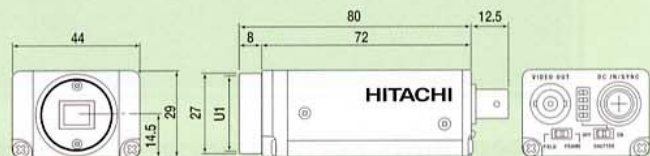
- Camera (with IR cut filter)1
- Operation manual1

Optional accessories

- Tripod adaptor, TA-M1
- 12pin plug , HR10A-10P-12S(01)
- AC adaptor, AP-130
- Junction box, JU-M1A
- Camera cables

	Mold type
2m	C-201KSM
5m	C-501KSM
10m	C-102KSM

External view



unit : mm

Hitachi Kokusai Electric Inc.

Head Office : 14-20, Higashi-Nakano 3-chome, Nakano-ku, Tokyo 164-8511, Japan
Phone : +81 (0) 3-3368-6111, Fax : +81 (0) 3-3365-9119 URL: <http://www.h-kokusai.com>

Beijing Office
Beijing Fortune Building 5, Dong San Huan Bei-lu, Chao Yang District, Beijing, 100004 China
Phone : +86 (0) 10-6590-8755/8756, Fax : +86 (0) 10-6590-8757

Hitachi Denshi America, Ltd. URL: <http://www.hdal.com>
Headquarters and Northeast Office : 150 Crossways Park Drive, Woodbury, New York, 11797, U. S. A.
Phone : (+1) 516-921-7200, Fax : (+1) 516-496-3718

West Office
: 371 Van Ness Way, Suite 120 Torrance, CA, 90501, U. S. A.
Phone : (+1) 310-328-0116, Fax : (+1) 310-328-6252

Midwest Sales
: Phone : (+1) 330-334-4115, Fax : (+1) 516-496-3718
Service (+1) 734-721-6180

South Sales
: Phone : (+1) 770-972-4724, Fax : (+1) 516-496-3718
Service (+1) 678-937-0201

Parts Center
: Phone : (+1) 516-682-4435, Fax : (+1) 516-921-0993

Latin Sales
: Phone : (+1) 516-682-4420, Fax : (+1) 516-496-3718

Hitachi Denshi Canada, Ltd. URL: <http://www.hitachidenshi.ca>
Head Office : 1 Select Avenue, Unit 11 Scarborough, Ontario M1V 5J3, Canada

Phone : (+1) 416-299-5900, Fax : (+1) 416-299-0450

Eastern Office
: 5795 Chemin St. Francois St. Laurent, Quebec H4S 1B6, Canada
Phone : (+1) 514-332-6687, Fax : (+1) 514-335-1664

Ottawa Office
: 9 Antares Drive, Nepean, Ontario, K2E 7V5, Canada
Phone : (+1) 613-727-3930, Fax : (+1) 613-625-4253

Hitachi Denshi (Europa) GmbH
Head Office : Weskircher Straße 80, Jügesheim D-63110 Rodgau, Germany

Phone : +49 (0) 6106-69920, Fax : +49 (0) 6106-16906
URL: www.hitachi-denshi.de
General email address : webmaster@hitachi-denshi.de

Hitachi Denshi (U. K.) Ltd.
Head Office : 14 Garrick Industrial Centre, Irving Way, Hendon, London, NW9 6AQ, United Kingdom

Phone : +44 (0) 208-202-4211, Fax : +44 (0) 208-202-2451
URL: www.hitachi-denshi-uk.com
General email address : sales@hitachi-denshi-uk.com

Leeds Office
: Brookfield House, Selby Road, Garforth, Leeds LS25 1NB United Kingdom
Phone : +44 (0) 113-287-4400, Fax : +44 (0) 113-287-4260
URL: www.hitachi-denshi-uk.com
General email address : sales@hitachi-denshi-uk.com

Specification are subject to change without notice.

