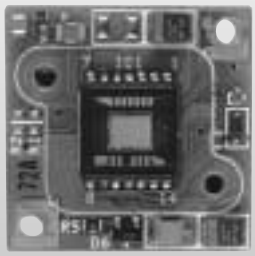
HITACHI

Black and White Camera Modules

BE-201/211/212/301 Series

BE-201A

BE-201B



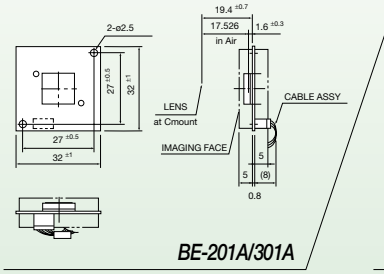
BE-211A

BE-201C CS-mount

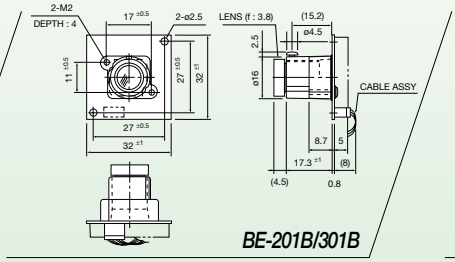
BE-212A

The Hitachi BE-201A/B/C, BE-211A/B/C, BE-212A/B/C, BE-301A/B/C is a black-and-white TV camera module using a 1/4-inch (BE-301A/B/C 1/3inch) interline CCD.
The BE-201A/B/C, BE-211A/B/C, BE-212A/B/C, BE-301A/B/C is most suitable for observation purpose or image processing system, because the camera is provided with various functions including the auto electronic shutter, gamma switch, AGC and integration mode switch.
The BE-201A/B/C, BE-211A/B/C, BE-212A/B/C, BE-301A/B/C is designed to be ultra-compact, and can be installed in a narrow space. (The BE-201B/212B is provided with a lens.)

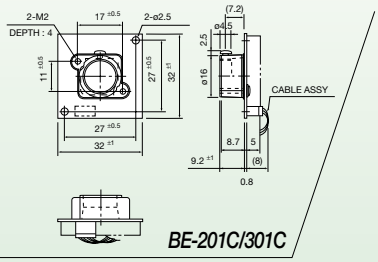
Demensions



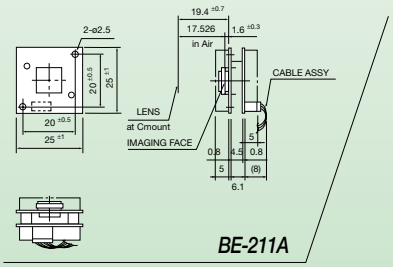
BE-201A/301A



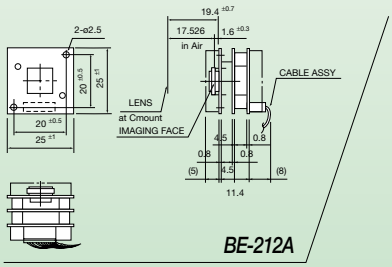
BE-201B/301B



BE-201C/301C



BE-211A



BE-212A

Major specifications

Imaging devices	1/4 inch interline CCD (301 1/3 inch)
No. of pexels	EIA : 537 (H) × 505 (V) CCIR : 537 (H) × 597 (V)
No. of effective pixels	EIA : 510 (H) × 492 (V) CCIR : 500 (H) × 582 (V)
Pixel pitch	201/211/212 EIA : 7.15 (H) × 5.55 (V) µm CCIR : 7.3 (H) × 4.7 (V) µm 301 EIA : 9.6 (H) × 7.5 (V) µm CCIR : 9.8 (H) × 6.3 (V) µm
Sensing area	201/211/212 EIA : 3.65 (H) × 2.73 (V) mm CCIR : 3.65 (H) × 2.74 (V) mm 301 EIA : 4.89 (H) × 3.61 (V) mm CCIR : 4.90 (H) × 3.66 (V) mm
Single format	Conforming to EIA or CCIR.
Hor. scanning frequency	EIA : 15.734 kHz CCIR : 15.625 kHz
Vert. scanning frequency	EIA : 59.94 Hz CCIR : 50 Hz
Sync system	201/211/301 Int, 212 Ext. (HD/VD)
Scanning system	2:1 interlaced
Video output	1.0 Vp-p, 75 Ω, unbalanced Video: 0.7 Vp-p Sync : 0.3 Vp-p, negative
Horizontal resolution	EIA : 380 TVL CCIR : 370 TVL

Signal-to-noise ratio	Better than 46 dB (AGC : OFF)
Electronic shutter	1/100,000s to standard exposore
AGC	Max. 18 dB approx.
Auto electronic shutter	Provided
Intergration mode	Field integration mode
Gamma correction	0.45
Minimum illumination	0.5 lx, F1.4
Power supply	9.0 VDC ±0.5 V
Power consumption	201 100 mA approx. 211/212/301 110 mA approx.
Board lens	Type B only provided
Lens mount	Provided Type B/C only
Ambient conditions	Operating : -5 to 45 °C, 90 %RH or less Storage : -10 to 60 °C, 70 %RH or less
Dimensions	201/301 Type A : 32(W) × 32(H) × 11(D) mm Type B : 32(W) × 32(H) × 23(D) mm Type C : 32(W) × 32(H) × 15(D) mm 211 Type A : 25(W) × 25(H) × 16(D) mm Type B : 25(W) × 25(H) × 28(D) mm Type C : 25(W) × 25(H) × 20(D) mm 212 Type A : 25(W) × 25(H) × 21(D) mm Type B : 25(W) × 25(H) × 33(D) mm Type C : 25(W) × 25(H) × 25(D) mm
Mass	201/211/301 Type A : 6 g Type B : 17 g Type C : 10 g 212 Type A : 7 g Type B : 18 g Type C : 11 g

Composition

- **Camera module** ·····1
- **Camera cable (300mm)** ·····1

Optional accessories

- **201/211/212/301 Board lens (Type B only)**
- **Pin-hole lens (Type C only)**
- **CS-mount adaptor (Type C only)**
- **C-mount adaptor (Type C only/CS-mount adaptor needed)**

Board lens (BE-201B/BE-211B/BE-212B/BE-301B)

Kind		Glass		( ):301B
Focal length f (mm)		2.5	3.8	6.0
Apportore F		2.0	2.0	2.0
Angular field of view (Deg)	H°	83.8(117.9)	52.9(70.9)	33.8(45.5)
	V°	61.9(85.3)	39.6(52.9)	25.3(33.8)
		Option	Std.	Option

Pin arrangement

Pin No.	Signal name	Color
1	VIDEO GND	BLK
2	VIDEO OUT	YEL
3	GND	GRN
4	+9 V	RED

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These products are manufactured at a factory which has received quality control system certification in accordance with the ISO international standards.

CERTIFIED JQA MANAGEMENT SYSTEM QUALITY SYSTEM

CERTIFICATE No. JMI-0062
ISO 9001/BS 5750Pt1
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Specification are subject to change without notice.

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