

Shikino
Shikino High-Tech CO., LTD.

Company Profile

Corporate Name	Shikino High-Tech Co., Ltd.
Corporate Establishment	January 29, 1975
Start of Current Business	July 1986
President	Akito Miyamoto
Head Office	829 Kichijima, Uozu-shi, TOYAMA
TEL.	+81-765-22-3477
Number of Employees	359 (As of March 31, 2022)

Main Business Activities

- Electronics system business Design and manufacture of equipment for semiconductor inspection
Contracted development of electronic equipment
- Microelectronics business LSI design and evaluation
IP (intellectual property) licensing and sales
- Product Development Business Development and sales of camera modules

Location

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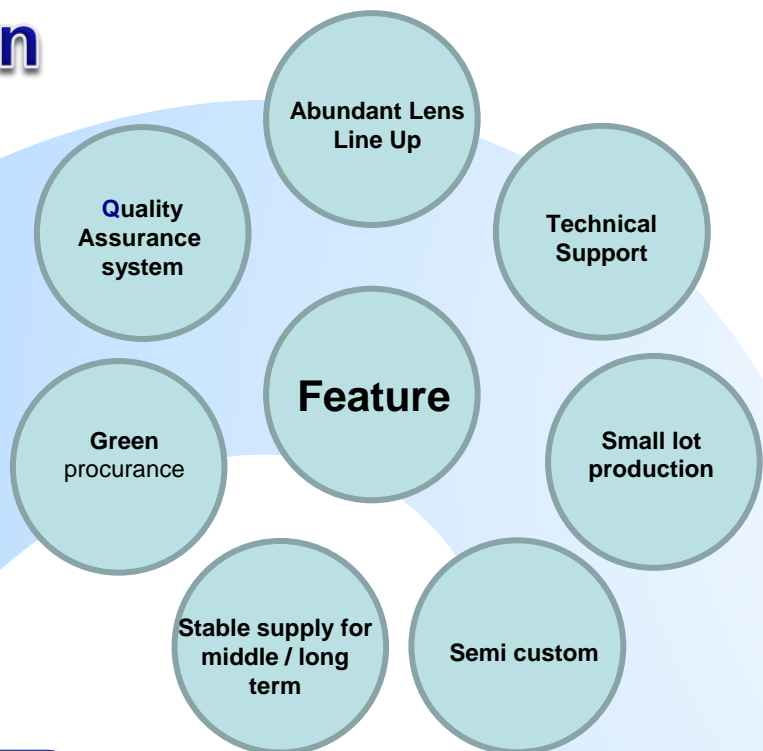
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Shikino High-Tech's Camera modules

Japan Production Cameras



Industrial embedded Camera

- Compact, High image quality, High functionality, Low power consumption

Sensing Camera

- Integrated camera and processor
- Development kit allows customers to incorporate their own camera apps

Camera customization

- Numerous development achievements
- Full and semi-customized
- Image processing systems and integrated development

Digital Output Camera

KBCR-S03TG

2M pixels



Image Sensor	1/2.7-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080
Imaging area [mm]	5.76 × 3.24
Output signal format	YUV422 8bit(16bit Parallel Output [Y 8bit UV 8bit])
Frame rate[fps]	30
External connection	60pin connector
Function	Auto Exposure Control, Auto Gain Control, Various image adjustment functions by I2C
Power supply voltage[V] / Power consumption[W]	5.0、12.0 / 1.6(MAX)
Operation temp.[°C] /Storage temp. [°C]	-10 ~ +60 / -20 ~ +70(without Optics)
PCB Dimension [mm]	40 × 30

KBCR-S01TL

2M pixels



Image Sensor	1/2.8-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080 / 1280 × 720
Imaging area [mm]	5.568 × 3.132
Output signal format	Raw 10bit(Low voltage LVDS 150mVp-p-DDR-4ch)
Frame rate[fps]	60 (1920 × 1080) / 120 (1280 × 720)
External connection	30pin connector
Function	Wide dynamic range
Power supply voltage[V] / Power consumption[W]	3.3、1.8 / 0.5(MAX)
Operation temp.[°C] /Storage temp. [°C]	-10 ~ +60 / -20 ~ +70(without Optics)
PCB Dimension [mm]	32 × 32

KBCR-S07VG

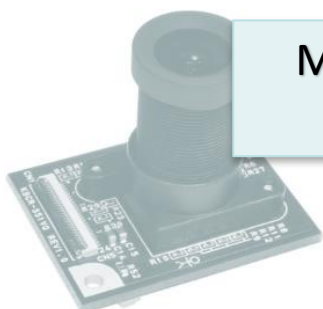
0.3M pixels



Image Sensor	1/4-inch Color Sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.584 × 2.688
Output signal format	YUV422 8bit (Parallel Output)
Frame rate[fps]	30
External connection	24pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance Various image adjustment functions by I2C
Power supply voltage[V] / Power consumption[W]	3.3 / 0.44(MAX)
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70(without Optics)
PCB Dimension [mm]	24 × 27

In development

1.3M pixels



Monochrome global shutter camera
Coming Soon

Image Sensor	Monochrome Sensor (Global shutter)
Total number of [pixels]	
Imaging area [mm]	

Function	
Power supply voltage[V] / Power consumption[W]	
Operation temp.[°C] /Storage temp. [°C]	
PCB Dimension [mm]	

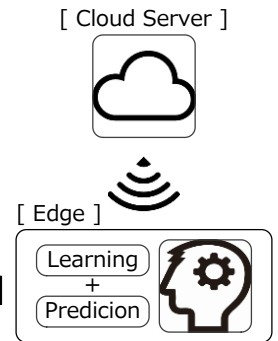
MIPI Output Camera



Image Sensor	1/3.6-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1344 × 1020
Imaging area [mm]	4.08 × 3.10
Output signal format	YUV 8bit
Image output interface	MIPI CSI (2 lane + Clock)
Frame rate[fps]	30
External connection	15pin connector
Function	HDR・Auto Exposure Control, Auto Gain Control, Auto White Balance Various image adjustment functions
Power supply voltage[V] / Power consumption[W]	3.3 / 0.8(MAX)
Operation temp.[°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	32 × 32

Feature

KBCR-S08MM is a camera module with MIPI CSI-2 output. The KBCR-S08MM is equipped with an ISP (picture quality adjustment function), which is rare among other companies, and can greatly reduce the burden of picture quality adjustment on the user. It uses a connector that is compatible with several commercially available embedded boards.



A sample driver for Linux is included with the initial purchase.
 ※Sample drivers are not guaranteed. Paid support is available. Please contact our sales office.

NTSC Output Camera



Image Sensor	1/4-inch Color Sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.584 × 2.688
Output signal format	NTSC composite
Frame rate[fps]	29.97
External connection	7pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance
Power supply voltage[V] / Power consumption[W]	5~12 / 0.5(MAX)
Operation temp.[°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	32 × 32

USB Camera

KBCR-S01TU

2M Pixels



Image Sensor	1/2.7-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080 / 1280 × 720
Imaging area [mm]	5.76 × 3.24
Output signal format	USB3.1-Gen1 (YUV)
Frame rate [fps]	30
External connection	USB3 MicroB Connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (software control)
Power supply voltage[V] / Power consumption[W]	5.0 / 2.4(MAX)
Operation temp.[°C] / Storage temp. [°C]	0 ~ +50 / -10 ~ +60 (without Optics)
PCB Dimension [mm]	40 × 30

KBCR-S02TU

2M Pixels



Image Sensor	1/2.7-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080 / 1280 × 720
Imaging area [mm]	5.76 × 3.24
Output signal format	USB2.0 (MJPEG)
Frame rate [fps]	15
External connection	5pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (software control)
Power supply voltage[V] / Power consumption[W]	5.0 / 0.9(MAX)
Operation temp.[°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	40 × 30

KBCR-S03TU

2M Pixels



Image Sensor	1/2.8-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080 / 1280 × 960 / 1280 × 720
Imaging area [mm]	5.568 × 3.132
Output signal format	USB2.0 (YUV/MJPEG)
Frame rate [fps]	5 (YUV) / 30 (MJPEG)
External connection	5pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (software control)
Power supply voltage[V] / Power consumption[W]	5.0 / 1.0(MAX)
Operation temp.[°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	15 × 40

KBCR-S03MU

1.2M Pixels



Image Sensor	1/4-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1280 × 960 / 640 × 480
Imaging area [mm]	3.84 × 2.88
Output signal format	USB2.0 (YUV/MJPEG)
Frame rate [fps]	7.5 (YUV) / 30 (MJPEG)
External connection	5pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (software control)
Power supply voltage[V] / Power consumption[W]	5.0 / 1.00(MAX)
Operation temp.[°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	15 × 40

USB Camera

KBCR-S07VUE

0.3M Pixels



Image Sensor	1/4-inch Color Sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.584 × 2.688
Output signal format	USB2.0 (YUV/MJPEG)
Frame rate [fps]	30
External connection	5pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (software control)
Power supply voltage[V] / Power consumption[W]	5.0 / 0.75(MAX)
Operation temp.[°C] / Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	15 × 40

In development

1.3M Pixels



Monochrome global shutter camera
Coming Soon

Image Sensor	Monochrome Sensor (Global shutter)
Total number of [pixels]	
Imaging area [mm]	
Function	
Power supply voltage[V] / Power consumption[W]	
Operation temp.[°C] / Storage temp. [°C]	
PCB Dimension [mm]	

USB Camera with ASS function

KBCR-S03TUA

2M Pixels



Image Sensor	1/2.8-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080 / 1280 × 960 / 1280 × 720
Imaging area [mm]	5.568 × 3.132
Output signal format	USB2.0 (YUV/MJPEG)
Frame rate [fps]	5 (YUV) / 30 (MJPEG)
External connection	5pin connector
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (software control), ASS
Power supply voltage[V] / Power consumption[W]	5.0 / 1.0(MAX)
Operation temp.[°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	15 × 40

ASS (Auto Sensing Support)

- Our proprietary camera exposure control technology.
- Independent exposure settings are possible for even and odd frames.
- Compared to the HDR function, it enables two types of exposure control according to the user's image processing, contributing to improving the user's image processing accuracy.

USB Camera with Distortion Correction

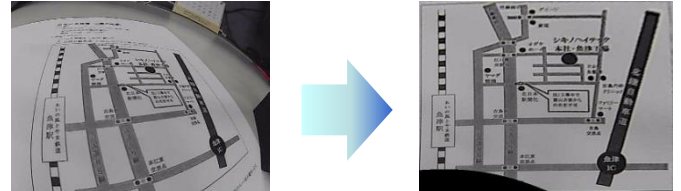
Feature

- Distortion correction functions (lens distortion correction, viewpoint conversion, panorama conversion)
- Various camera settings (exposure time, JPEG quality settings, transmission rate adjustment, etc.)
- White LED illumination function (0.3MP type is optional)

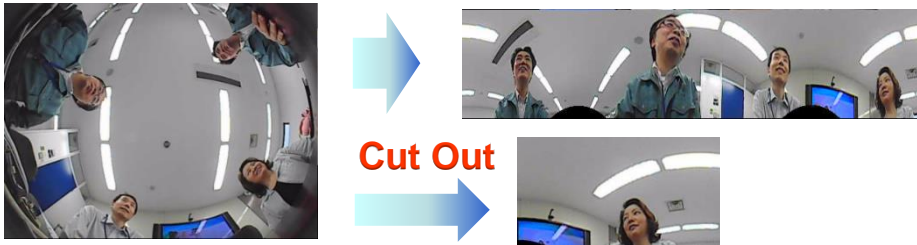
Distortion correction



Viewpoint conversion



Panorama conversion



KBCR-iC11VG-N1U

0.3M Pixel



Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.58 × 2.69
Power feeding	Via USB
Image output IF	UVC(USB)
Connection IF	CDC(USB)
LED illumination	Option
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	Camera PCB : 24 × 27 、 CPU PCB : 40 × 30
Distortion Correction function	Lens distortion correction, viewpoint conversion, panorama conversion

KBCR-iC21MG-N2U

1.2M Pixels



Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	1280 × 960
Imaging area [mm]	3.84 × 2.88
Power feeding	Via USB
Image output IF	UVC(USB)
Connection IF	CDC(USB) / RS-232C
LED illumination	Standard
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	40 × 30
Distortion Correction function	Lens distortion correction, viewpoint conversion, panorama conversion

LAN Camera/PoE Camera

KBCR-iC11VG-N1L

0.3M Pixels



Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.58 × 2.69
Power feeding	Via USB
Image output IF	UDP(LAN)
Connection IF	TCP(LAN)
LED illumination	Option
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	Camera PCB : 24 × 27 、 CPU PCB : 40 × 30
Distortion Correction function	Lens distortion correction, viewpoint conversion, panorama conversion

KBCR-iC21MG-N2L

1.2M Pixels



Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.58 × 2.69
Power feeding	Via USB
Image output IF	UDP(LAN)
Connection IF	TCP(LAN) / RS-232C
LED illumination	Standard
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	40 × 30
Distortion Correction function	Lens distortion correction, viewpoint conversion, panorama conversion

KBCR-iC11VG-N1P

0.3M Pixels



Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.58 × 2.69
Power feeding	Via PoE
Image output IF	UVC(USB) / UDP(LAN)
Connection IF	CDC(USB) / TCP(LAN)
LED illumination	Option
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	Camera PCB : 24 × 27 、 CPU PCB : 40 × 30
Distortion Correction function	Lens distortion correction, viewpoint conversion, panorama conversion

KBCR-iC21MG-N2P

1.2M Pixels



Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	640 × 480
Imaging area [mm]	3.58 × 2.69
Power feeding	Via PoE
Image output IF	UVC(USB) / UDP(LAN)
Connection IF	CDC(USB) / TCP(LAN) / RS-232C(汎用コネクタ)
LED illumination	Standard
Operation temp.[°C] /Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	40 × 30
Distortion Correction function	Lens distortion correction, viewpoint conversion, panorama conversion

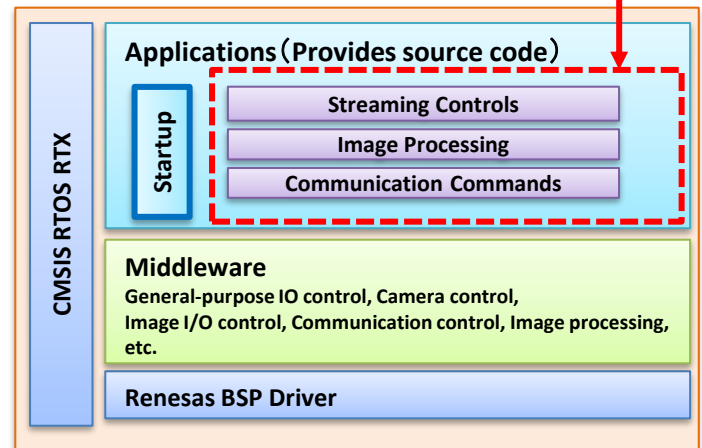
Intelligent camera Lite SDK (Software Development Kit)

KBCR-iCLSDK-A/B is a development kit that enables software development on Intelligent Camera Lite. We provide a base development environment, and customers can use the sample code as a reference. Since you can concentrate on application development, development costs can be reduced.

Feature

- Customers can embed their own camera apps.
- Camera driver and distortion correction API provided.
- Real-time image processing result display via UVC/UDP.
- Write-in user apps for shipping (in mass production).
- Includes Windows sample programs for image display & communication.
- Two types available
0.3M Pixels : KBCR-iCLSDK-A
1.2M Pixels : KBCR-iCLSDK-B

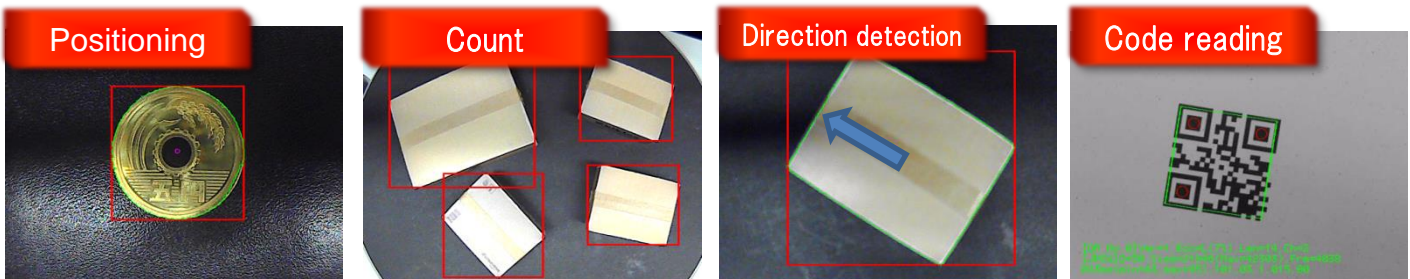
User-developable



Software Specifications

	Item	Description.
Development environment	IDE	Renesas e2studio Version 6.3
	Compiler	Renesas GCC
	ICE	Segger J-Link J-Link 9-pin Cortex-M Adapter also need
Library	IO Control library	GPIO/I2C/UART
	Camera Control library	Exposure and gain control, sharpness, brightness, saturation, etc.
	Image IO Control library	Camera capture control, distortion correction IP control, JPEG IP control, UVC/UDP output control
	Image Process library	General-purpose image processing such as binarization, labeling, etc. Character drawing processing of alphanumeric characters (not Japanese) and symbols. Line, rectangle, and circle drawing processing
Other	Windows Connection tool	USB (CDC/UVC) and LAN (TCP/UDP) communication sample programs in source code (C#)

Applications



※ Code reading library is optional

Bundled item

Camera board / CPU board / Lens (Several types) / Optional boards (LAN, etc.) /
Debugging board / Screws and Spacers / Connection cables /
CD-ROM (documents, libraries, sample codes, Window communication tools)

*Software license agreement is required when purchasing the development kit.

QR code recognition camera module

Reader module for reading various barcodes and QR codes.
Supports reading of QR displays on smartphones.
Ideal for integration into industrial equipment such as payment terminals, ATMs, vending machines, ticket vending machines, etc.

Feature

- Supports large depth-of-field lenses.
- Narrow-angle to wide-angle lens selectable (for various installation conditions, space saving).
- Real-time image output (easy installation position adjustment).
- Sensor settings can be optimized to suit the installation environment.



Example of reading in backlit condition



0.3M Pixel Model w / USB IF, White LED

Code recognition specification

Item	0.3M Pixel Model	1.2M Pixel Model
2D Code	QR Code (Up to 4 codes can be read at the same time)	QR Code, DataMatrix (optional) (Up to 8 codes can be read at the same time)
1D Code	EAN/UPC、ITF、NW7、Code39、Code128 (Supports check digit setting)	
Operating Mode	Permanent read mode, Trigger mode, Moving object detection mode	
Startup time / Reading time	Can be activated within 1 second / Read within 0.1 second	

Model number

Resolution	Model number	IF / Power
0.3M Pixel	KBCR-CR31U	USB / via USB
	KBCR-CR31UW	USB / via USB With White LED
	KBCR-CR31L	LAN / via USB
	KBCR-CR31P	PoE / via PoE
	KBCR-CR31PW	PoE / via PoE With White LED

Resolution	Model number	IF / Power
1.2M Pixels	KBCR-CR43U	USB / via USB With White LED
	KBCR-CR43L	LAN / via USB With White LED
	KBCR-CR43P	PoE / via PoE With White LED
	KBCR-CR43S	RS-232C / External terminal feed With White LED

*QR Code is a registered trademark of DENSO WAVE INCORPORATED.

List of Lenses

P/N	Sensor Size	Focus f [mm]	F/No.	Angle of view[°]*1			TV Distortion	Optical length [mm]*2	Construction	Mount [mm]	Lens Holder
				Vertical	Horizontal	Diagonal					
HPB2010	"1/4	4.80	2.6	43	33	53	-1%	11.0	2P	M12 × P0.5	Standard*3
G006		2.94	1.9	78.8	57.6	102.4	17.1%	21.7	6G		
G001		2.55	2.0	91.2	66.6	119.2	21.5%	21.0	6G		
HPB1007		2.90	2.0	74	54	94	-17%	21.2	4G		
HPB2033		2.20	2.0	93	72	112	-16%	15.1	2P		
195200FT		1.90	2.0	118.1	90.8	150	-19.2%	19.4	5G		
DW178720*5		1.80	2.0	118.8	88.1	151.4	-23.1%	21.8	7G		
HPB1025		1.68	2.5	129	95	167	-37%	13.7	6G		
HPB3041		1.19	2.4	122.6	102.8	137.9	-9%	13.9	2P2G		
4N321		1.05	2.0	194	142	206	±5%	11.8	4P1G		
4N313	"1/3.7	1.12	2.2	136	110	167	-16%	9.6	3P	M8 × P0.5	Custom*4
DW9607CM	"1/3	6.00	2.0	40	30	49	-1%	19.3	4G	M12 × P0.5	Standard*3
VIR60620F-CM2-3M		6.00	2.0	46.3	34.6	58.2	-3.3%	21.2	6G		
DW9305CM		4.30	1.8	64	47	78	-8.6%	17.3	5G		
HPB1014_C1		3.80	2.4	74	54	96	-11%	21.6	4G		
HPB1014_C4		3.80	8.0	74	54	96	-11%	22.3	4G		
HPB1033		2.30	2.6	124	91	160	-24%	16.8	6G		
AS133		2.09	2.0	115	89	137	-11%	18.0	3P3G		
JSD2625		"1/2.8	2.60	4.0	95	62	103	-3%	18.3		
JSD2828	"1/2.7	2.80	2.8	94	60	105	-4%	13.5	2G3P		
HPB1005_B3	"1/2	9.30	2.8	43	33	53	-2%	16.0	5G	M12 × P0.5	Standard*3
HPB1005_D2	"1/2	9.30	8.0	43	33	53	-2%	16.0	5G		

*1 Angle of view in the table is the view angle correspond to the Sensor size in the table. View angle will be smaller when installed smaller size sensor than correspond sensor.

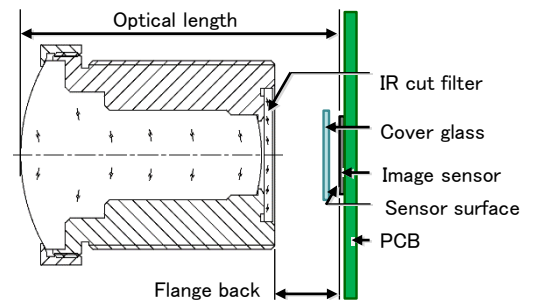
*2 Optical length: Please refer to the right figure.

*3 Suitable lens holder sometimes differs depend on lens. Please contact us.

*4 Necessary of custom development of lens holder.

*5 With visible light cut filter.

※ IR: Please contact us because some items are not available for IR.



【 Contact 】

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