

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 JAPAN
TEL.	+81-765-22-3477
Number of Employees	448 (As of March 31, 2024)

Location

Headquarters / Uozu Factory

829 Kichijima, Uozu-shi,
TOYAMA
937-0041 JAPAN
TEL. +81-765-22-3477
FAX. +81-765-22-3916

Tokyo Design Center

9th Fl., Shibakoen-Denki bldg.
1-1-12 Shibakoen,
Minato-ku, TOKYO
105-0011 JAPAN
TEL. +81-3-5777-3340
FAX. +81-3-5777-3341

Osaka Design Center

6th Fl., Shin-Osaka Nishiura bldg.
2-7-38 Nishi-Miyahara, Yodogawa-ku, Osaka-shi, OSAKA
532-0004 JAPAN
TEL. +81-6-6150-7730
FAX. +81-6-6150-7739



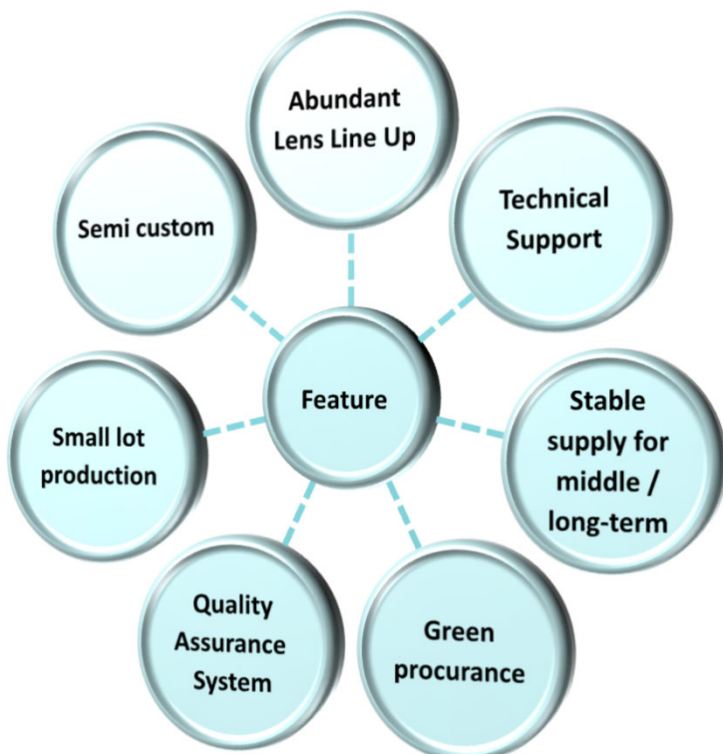
■ **Yokohama Design Center**
6th Fl., Sumisei Shin-Yokohama
2nd bldg.
3-18-14 Shin-Yokohama,
Kohoku-ku, Yokohama-shi, KANAGAWA
222-0033 JAPAN

■ **Fukuoka Design Center**
5th Fl., Fukuoka Institute of System LSI Design Industry.
3-8-33 Momochihama, Sawara-ku, Fukuoka-shi, FUKUOKA
814-0001 JAPAN

■ **Fukushima Branch**
41-29, Onahamanoda aza yanagi-machi,
Iwaki-shi, FUKUSHIMA
971-8126 JAPAN

■ **Kyushu Branch**
#213, 2nd Fl., Technology Development and Exchange Center.
8-1 Hibikino-kita, Wakamatsu-ku, Kitakyushu-shi, FUKUOKA
808-0138 JAPAN

■ **Kumamoto Branch**
#108, Kumamoto University Collaboration Incubator.
3-14-3 Minami-Kumamoto, Chuo-ku, Kumamoto-shi, KUMAMOTO
860-0812 JAPAN



Made in JAPAN

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 FFC 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 FFC 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

Made in JAPAN

- Integrated production at our factory in Japan
- High quality is provided by a clean room dedicated to cameras
- High reliability and stable supply over the medium to long-term
- Quality Assurance System



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 Micro-B 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	HDR, 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]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	15 × 40

KBCR-S51MU

1.5M pixels

In dev.



Image Sensor	1/4.5-inch Monochrome Sensor (Global shutter)
Total number of [pixels]	1440 × 1080
Imaging area [mm]	3.168 × 2.376
Output signal format	USB2.0
Frame rate [fps]	T.B.D
External connection	T.B.D
Function	Auto Exposure Control, Auto Gain Control
Power supply voltage [V] / Power consumption [W]	5.0 / T.B.D
Operation temp. [°C] / Storage temp. [°C]	T.B.D
PCB Dimension [mm]	T.B.D

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 (Auto Sensing Support)
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.

MIPI Output Camera

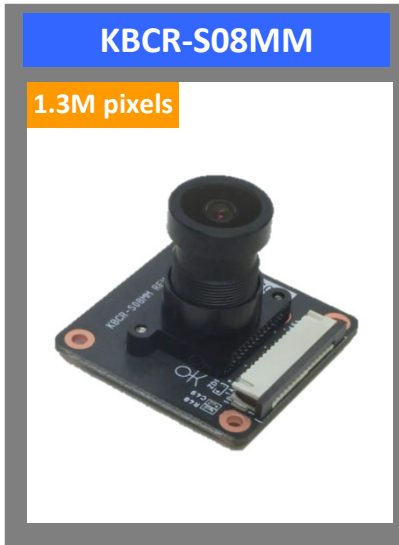


Image Sensor	1/3.6-inch Color Sensor (Rolling shutter)
Total number of [pixels]	1344 × 1020
Imaging area [mm]	4.08 × 3.10
Output signal format	YUV 8bit
Image output interface	MIPI CSI (2 Lane + Clock)
Frame rate [fps]	30
External connection	15pin FFC connector
Function	HDR, Auto Exposure Control, Auto Gain Control, Auto White Balance, Various image adjustment functions (Provides driver software for Linux)
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

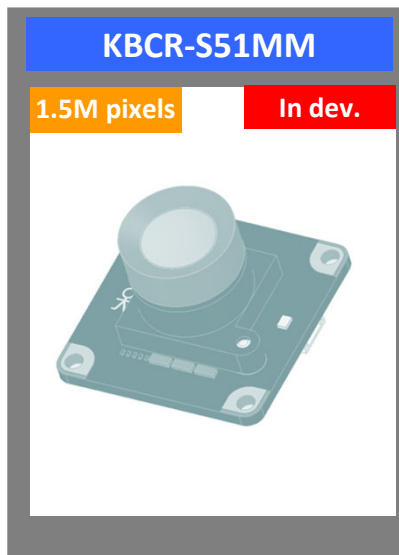


Image Sensor	1/4.5-inch Monochrome Sensor (Global shutter)
Total number of [pixels]	1440 × 1080
Imaging area [mm]	3.168 × 2.376
Output signal format	Monochrome Raw 10bit
Image output interface	MIPI (4 Lane)
Frame rate [fps]	120 (MAX)
External connection	26pin FFC connector
Function	Auto Exposure Control, Auto Gain Control, External trigger, LEDOUT
Power supply voltage [V] / Power consumption [W]	3.3 V & 1.8 V / T.B.D
Operation temp. [°C] / Storage temp. [°C]	T.B.D
PCB Dimension [mm]	T.B.D

Analog 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 with Distortion Correction

Feature

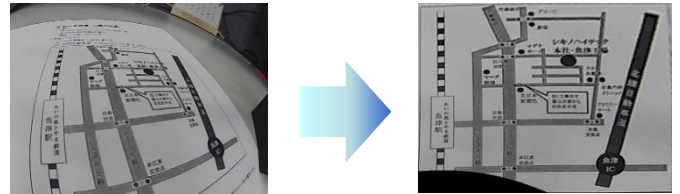
- Distortion correction functions (Lens distortion correction, Viewpoint conversion, Panorama conversion)
- Various camera settings (Exposure time, JPEG quality settings, Transmission rate adjustment, etc.)
- White LED illumination function (Requires optional substrate)

Distortion correction



Aids image processing by correcting lens distortion

Viewpoint conversion



Viewpoint conversion converts the image to one viewed directly above
Can be combined with lens correction

Panorama conversion



Fisheye image to panorama conversion
Partial cropping is also possible

KBCR-iC11VG-N1U

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 interface	UVC (USB)
Connection interface	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
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 / Via External CN
Image output interface	UVC (USB)
Connection interface	CDC (USB) / RS-232C (General-purpose connector)
LED illumination	Standard
Operation temp. [°C] / Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	40 × 30
Function	Lens distortion correction, Viewpoint conversion, Panorama conversion

LAN Camera / PoE Camera

KBCR-iC11VG-N1L/P

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 or Via PoE
External connection	RJ45 connector
Image output interface	UDP MJPEG
Connection interface	TCP
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
Function	Auto Exposure Control, Auto White Balance, Various image adjustment functions Lens distortion correction, Viewpoint conversion, Panorama conversion

KBCR-iC21MG-N2L/P

1.2M pixels

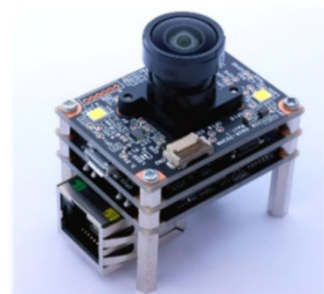


Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	1280 × 960
Imaging area [mm]	3.84 × 2.88
Power feeding	Via USB or Via PoE
External connection	RJ45 connector
Image output interface	UDP MJPEG
Connection interface	TCP
LED illumination	Standard
Operation temp. [°C] / Storage temp. [°C]	-20 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	40 × 30
Function	Auto Exposure Control, Auto White Balance, Various image adjustment functions Lens distortion correction, Viewpoint conversion, Panorama conversion

KBCR-IP11TN

2M pixels

In dev.

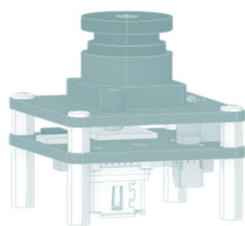
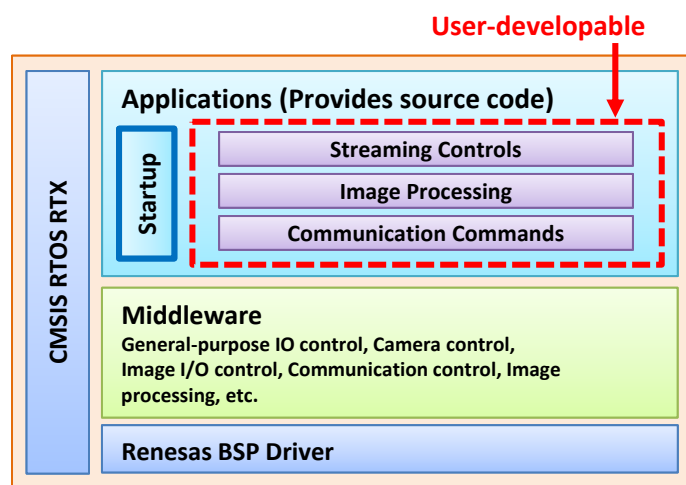


Image Sensor	1/4-inch Color sensor (Rolling shutter)
Total number of [pixels]	1920 × 1080
Imaging area [mm]	3.84 × 2.16
Power feeding	DC24V / 12V / 5V
External connection	Nylon connector
Image output interface	RTSP / RTP H.264
Connection interface	HTTP (Web API)
LED illumination	None
Operation temp. [°C] / Storage temp. [°C]	-10 ~ +60 / -20 ~ +70 (without Optics)
PCB Dimension [mm]	29 × 29
Function	HDR, Auto Exposure Control, Auto White Balance, Various image adjustment functions Bitrate Adjustment

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

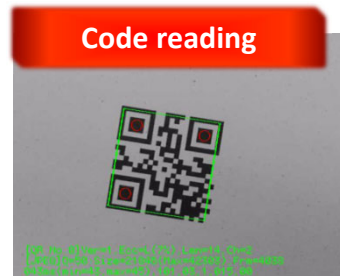
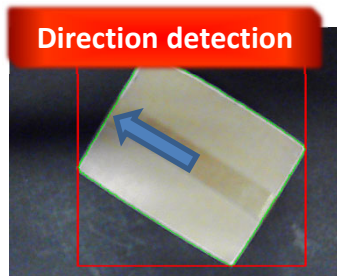
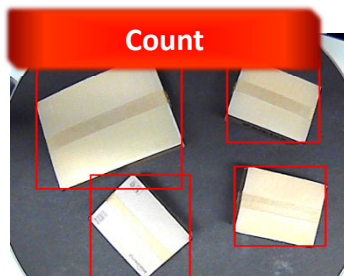
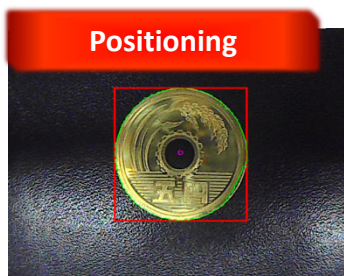
- Customers can embed their camera apps.
- Camera driver and distortion correction API provided.
- Real-time image processing result display via UVC/UDP.
- Write-in user apps for shipping (in mass production).
- Includes Windows sample programs for image display & communication.
- Two types available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



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.

Reader module for reading various barcodes and QR codes.

Supports reading of QR displays on smartphones.

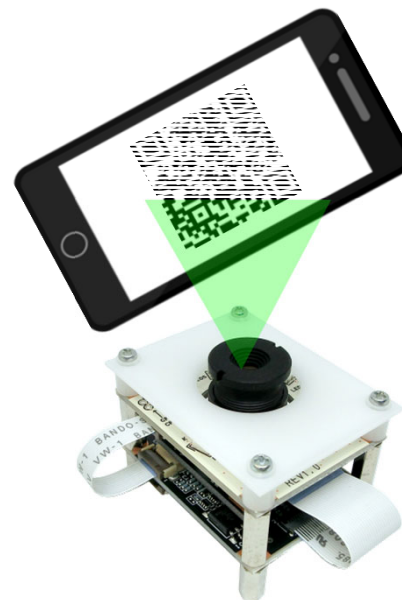
Ideal for integration into industrial equipment such as payment terminals, ATMs, vending machines, ticket vending machines, etc.

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 Pixels Model w / USB IF, White LED](#)

Code recognition specification

Item	0.3M Pixels Model	1.2M Pixels Model
QR 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)
Barcode	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	Interface / Power
0.3M Pixels	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	Interface / Power
1.2M Pixels	KBCR-CR43U	USB / via USB
	KBCR-CR43L	LAN / via USB
	KBCR-CR43P	PoE / via PoE
	KBCR-CR43S	RS-232C / External terminal feed with White LED

QR Code is a registered trademark of DENSO WAVE INCORPORATED.

This camera unit integrates a 1.2M pixels camera module and a processor for image processing. It enables the embedded development of various image-processing software that operates within the unit.

Feature

- Two-panel board configuration: camera board and CPU board
- Equipped with AI accelerator, video codec engine, and 3D graphics engine
- Customizable expansion board to support various interfaces
- Adaptable to a wide range of image processing solutions through software modification and customization

Hardware specification

Camera

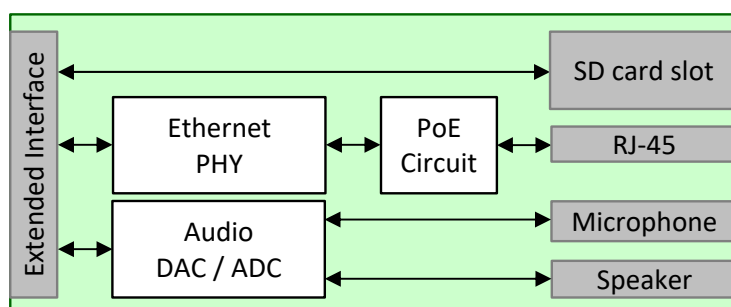
Item	Description
Image Sensor	1/4-inch CMOS Color sensor
Total number of [pixels]	1280 × 960 (MAX)
Imaging area [mm]	3.84 × 2.88
Image Format	YUV Color
Shutter	Rolling shutter
Function	Auto Exposure Control, Auto Gain Control, Auto White Balance, etc.



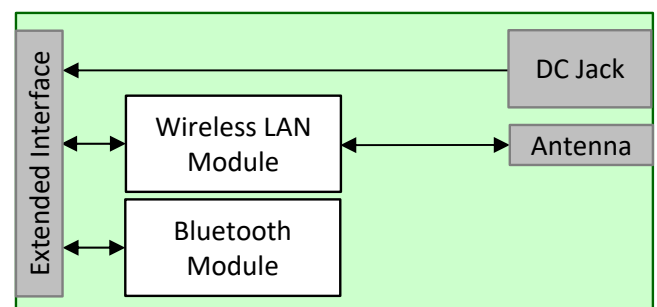
Processor, Interface

Item	Description
Processor	RZ/V2L (Renesas Electronics Corp.) ARM Cortex-A55 (1.2GHz Dual) / ARM Cortex-M33 (200MHz)
OS	Linux
ROM / Storage	SPI-NOR Flash Memory (64Mbyte) / eMMC (16Gbyte)
RAM	DDR4 SDRAM (2Gbyte)
Interface	UART, USB2.0 (OTG)
Extended Interface (Option)	USB (HOST), UART, SPI, I2S, SD, GPIO, MII, RGMII
Other	AI Accelerator / Video Codec Engine (H.264) / 3D graphics engine (Arm Mail-G31)
Dimension [mm]	W: 50 × D: 50 × H: 15.2 (without Optics)

Expansion board custom examples



Network Camera System
(with recording function)



Wireless Communication System

List of Lenses

The angle of view in the table is a typical value of the lens.
The angle of view, etc. will vary depending on the combination of camera and lens.

Model number	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					
LP4801A	"1/4	4.80	2.6	44.0	34.0	52.0	-1.0%	11.0	2P	M12 × P0.5	Standard *3
LG2901A		2.94	1.9	78.8	57.6	102.4	17.1%	21.7	6G		
LG2902A		2.90	2.0	74.0	54.0	94.0	-17.0%	21.2	4G		
LG2601A		2.55	2.0	91.2	66.6	119.2	21.5%	21.0	6G		
LP2201B		2.19	2.2	98.0	75.0	114.0	-16.0%	15.5	2P		
LG1901A		1.90	2.0	118.1	90.8	150.0	-18.6%	19.2	5G		
LG1601A		1.58	2.2	134.8	99.7	172.6	-11.5%	18.35	6G		
LH1201A		1.19	2.4	122.6	102.8	137.9	-9.0%	13.9	2P2G		
LP1102A		1.05	2.0	194.0	142.0	206.0	±5.0%	11.8	4P1G		
LP1101A	"1/3.7	1.12	2.2	136.0	110.0	167.0	-16.0%	9.6	3P	M8 × P0.5	Custom *4
LG6001A	"1/3	6.00	2.0	40.0	30.0	53.0	-1.0%	19.5	4G	M12 × P0.5	Standard *3
LG6002A		6.00	2.0	46.3	34.6	58.2	-3.3%	21.2	6G		
LG4301A		4.30	1.8	64.0	47.0	78.0	-8.6%	17.3	5G		
LG3801A		3.80	2.4	74.0	54.0	96.0	-11.0%	22.3	4G		
LG3801B		3.80	8.0	74.0	54.0	96.0	-11.0%	22.3	4G		
LH2801A		2.80	2.8	94.0	60.0	105.0	-4.0%	13.5	2G3P		
LG2301A		2.30	2.6	124.0	91.0	160.0	-24.0%	16.8	6G		
LH2101A		2.09	2.0	115.0	89.0	137.0	-11.0%	18.0	3P3G		
LHA001A	"1/2.8	10.00	3.0	30.7	17.5	35.1	-0.8%	13.22	2G2P		
LH2601A		2.60	4.0	94.8	62.2	103.0	-1.2%	22.0	4G2P		

*1 The angle of view in the table indicates the angle of view for the corresponding sensor size.

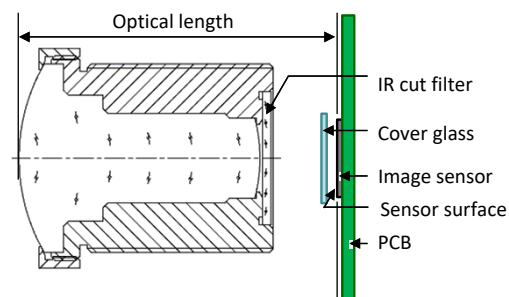
If a smaller sensor size is used, the angle of view will be narrower.

*2 Refer to the figure on the right for the total optical length.

*3 A suitable lens holder sometimes differs depending on the lens. Please contact us.

*4 Necessary of custom development of lens holder.

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



[Contact]

■Tokyo Design Center

shikino_camera@shikino.co.jp

9th Fl., Shibakoen-Denki bldg. 1-1-12 Shibakoen, Minato-ku, TOKYO 105-0011 JAPAN
TEL. +81-3-5777-3340 FAX. +81-3-5777-3341

■Osaka Design Center

6th Fl., Shin-Osaka Nishiura bldg. 2-7-38 Nishi-Miyahara, Yodogawa-ku, Osaka-shi, OSAKA 532-0004 JAPAN
TEL. +81-6-6150-7730 FAX. +81-6-6150-7739