



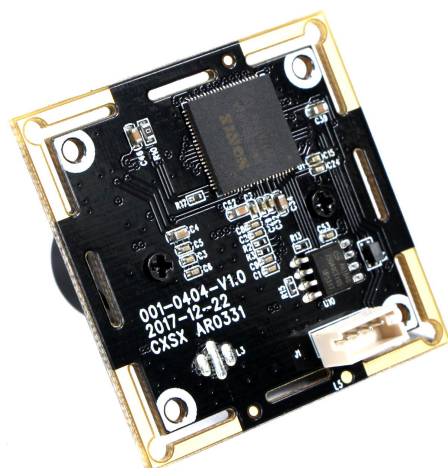
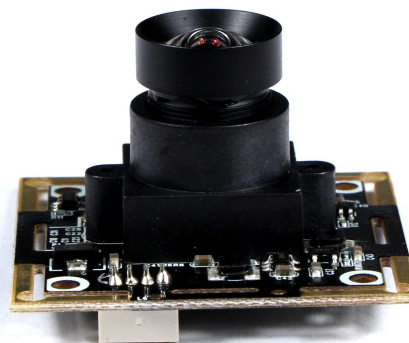
HAMPO-USB-0404-V1.0

3MP AR0331 Fixed Focus USB 2.0 Camera Module

Product Description

Hampo 003-0404 camera module has the advantages of 3 million full HD pixel, H.264 high-speed output, clear backlight shooting.

The 1/3 "AR0331 CMOS color sensor supports 2052(H) x 1536(V)@30fps for high quality picture and video shooting. The Hampo 003-0404 camera module has an 91.2 degree diagonal wide angle lens that can detect a wide range of objects. What's more, it has a wide dynamic range up to 110DB and can take sharp photos and videos in a backlight environment. Widely used in various surveillance cameras, video doorbell, cat eye camera, etc.





Key Features

1. 3MP Full High Definition
2. WDR Backlight Shooting&Super Clear
Hampo 0404 has a wide dynamic range up to 110DB
3. Wide Angle Distortionless Lens
The camera with 91.2 degree diagonal wide angle lens
4. USB2.0 MJPEG/YUY2/H.264 Output



Product Specifications

Camera Model No.	HAMPO-0030-0404
Sensor Size	AR0331
Maximum Resolution	2052 x 1536
Maximum Pixels	3MP
Sensor Size	1/3"
Pixel Size	2.2μm x 2.2μm
Frame Rate	30fps
Wide Dynamic Range	110BD
Output Format	MJPEG / YUY2/H.264
Lens Specs (Default)	FOV =91.2°(Diagonal)
	TTL = 15.65 mm
	Lens Construction = 1G+4P+IR
	S-Mount = M12* P0.5mm
Auto Control	Saturation, Contrast, Acutance, White Balance, Exposure
Audio (YES)	Digital Microphone, Single, Dual Channel Optional
Input Voltage	DC 5V
Working Current	Max 300mA
USB Interface	USB 2.0
Storage Temperature	-20°C to +70°C
PCB Size	38mm x 38mm
System Compatibility	Windows XP (SP2, SP3), Vista, 7, 8, 10, 11, Android, Mac OS
	Linux or OS with UVC Driver, Raspberry Pi by USB Port
Software for USB Camera	AMCAP, Webcam Viewer, V4L2 Controls, Contacam
	VLC Player, MotionEye OS, iSpy, ZoneMider, Yawcam

Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi



Windows

Android

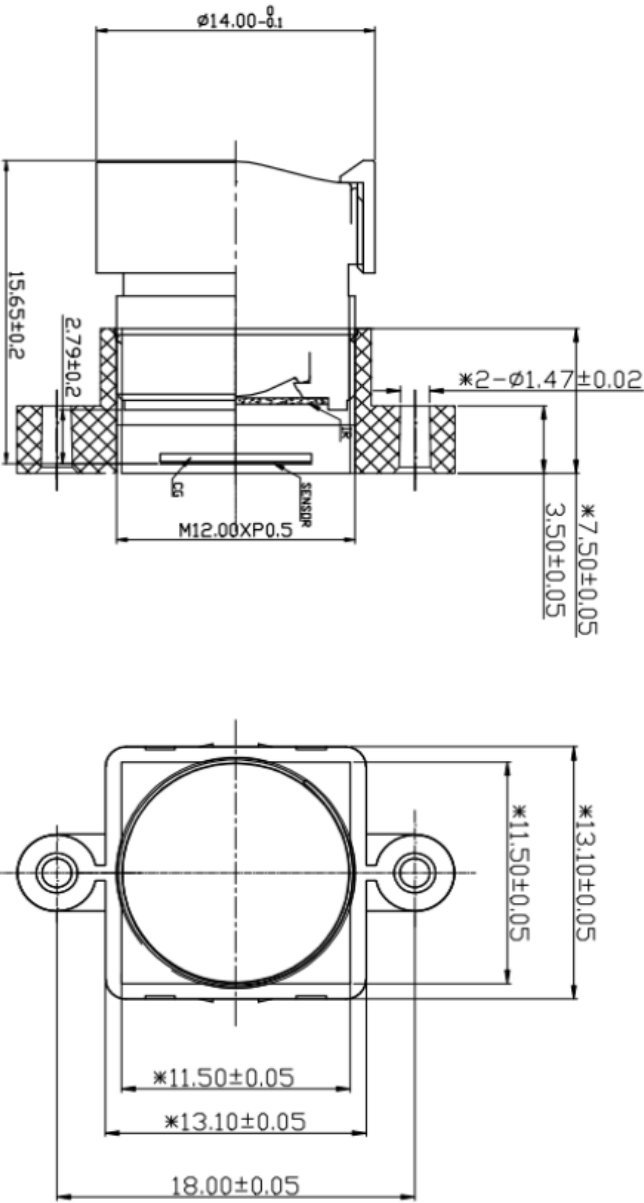
Mac OS

Linux

Raspberry Pi

20515A25-01+H1802 Lens Specification

- NOTE:
1.All surfaces are AR coated
2.IR Filter SPEC.
T=50% @ 650-670 nm
3.Material applied fully with ROHS standard



SPECIFICATION

Sensor Type	GC4663(1/3")
Focal Length	2.88mm
Total Length	15.65mm
F/NO	2.2
Mechanical BFL	2.79
Optical FOV(D)	91.2°(Y=2.94mm)
Optical FOV(H)	81°(Y=2.56mm)
Optical FOV(V)	52°(Y=1.44mm)
TV DISTORTION	<0.67%
Relative Illumination	>68%
Chief Ray Angle	<10.8°
Construction	1Glass+4Plastic+1 IR
Storage Temperature	-40°C ~ +85°C

REV	DESCRIPTION	NAME	DATE	NAME	DATE	PART NAME	VIEW	SCALE
1						20515A6-01		
2				DRAWN		+H1802		
3				CHECKED				
4				APPROVED				5:1

AR0331 1/3-Inch 3.1 Mp/Full HD Digital Image Sensor

AR0331

General Description

The **onsemi** AR0331 is a 1/3-inch CMOS digital image sensor with an active-pixel array of 2048 (H) x 1536 (V). It captures images in either linear or high dynamic range modes, with a rolling-shutter readout. It includes sophisticated camera functions such as in-pixel binning, windowing and both video and single frame modes. It is designed for both low light and high dynamic range scene performance. It is programmable through a simple two-wire serial interface. The AR0331 produces extraordinarily clear, sharp digital pictures, and its ability to capture both continuous video and single frames makes it the perfect choice for a wide range of applications, including surveillance and HD video.

The **onsemi** AR0331 can be operated in its default mode or programmed for frame size, exposure, gain, and other parameters. The default mode output is a 1080p-resolution image at 60 frames per second (fps). In linear mode, it outputs 12-bit or 10-bit A-Law compressed raw data, using either the parallel or serial (HiSPi) output ports. In high dynamic range mode, it outputs 12-bit compressed data using parallel output. In HiSPi mode, 12- or 14-bit compressed, or 16-bit linearized data may be output. The device may be operated in video (master) mode or in single frame trigger mode.

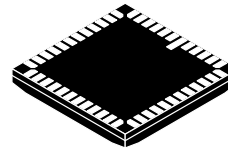
FRAME_VALID and LINE_VALID signals are output on dedicated pins, along with a synchronized pixel clock in parallel mode.

The AR0331 includes additional features to allow application-specific tuning: windowing and offset, auto black level correction, and on-board temperature sensor. Optional register information and histogram statistic information can be embedded in the first and last 2 lines of the image frame.

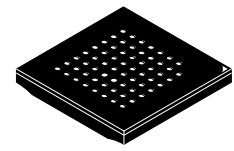
The sensor is designed to operate in a wide temperature range (–30°C to +85°C).

Features

- Superior Low-light Performance
- Latest 2.2 µm Pixel with **onsemi** A-Pix™ Technology
- Full HD Support at 1080 P 60 fps for Superior Video Performance
- Linear or High Dynamic Range Capture
- 3.1 M (4:3) and 1080 P Full HD (16:9) Images
- Optional Adaptive Local Tone Mapping (ALTM)
- Interleaved T1/T2 Output
- Support for External Mechanical Shutter
- Support for External LED or Xenon Flash
- Slow-motion Video (VGA 120 fps)
- On-chip Phase-locked Loop (PLL) Oscillator
- Integrated Position-based Color and Lens Shading Correction
- Slave Mode for Precise Frame-rate Control
- Stereo/3D Camera Support



ILCC48 10x10
CASE 847AG



IBGA52 9x9
CASE 503AA

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

- Statistics Engine
- Data Interfaces: Four-lane Serial High-speed Pixel Interface (HiSPi) Differential Signaling (SLVS and HiVCM), or Parallel
- Auto Black Level Calibration
- High-speed Context Switching
- Temperature Sensor

Applications

- Video Surveillance
- Stereo Vision
- Smart Vision
- Automation
- Machine Vision
- 1080p60 Video Applications
- High Dynamic Range Imaging

AR0331

Table 1. KEY PARAMETERS

Parameter		Typical Value
Optical Format		1/3-inch (5.8 mm) Note: Sensor optical format will also work with lenses designed for 1/3.2" format.
Active Pixels		2048 (H) x 1536 (V) (4:3, mode)
Pixel Size		2.2 μm x 2.2 μm
Color Filter Array		RGB Bayer
Shutter Type		Electronic rolling shutter and GRR
Input Clock Range		6 – 48 MHz
Output Clock Maximum		148.5 Mp/s (4-lane HiSPi) 74.25 Mp/s (Parallel)
Output	Serial	HiSPi 10-, 12-, 14-, or 16-bit
	Parallel	10-, 12-bit
Frame Rate	Full Resolution	30 fps
	1080p	60 fps
Responsivity		1.9 V/lux-sec
SNR _{MAX}		39 dB
Max Dynamic Range		Up to 100 dB
Supply Voltage	I/O	1.8 or 2.8 V
	Digital	1.8 V
	Analog	2.8 V
	HiSPi	0.3 V–0.6 V, 1.7 V–1.9 V
Power Consumption (Typical)		<780 mW
Operating Temperature (Ambient)		–30°C to +85° C
Package Options		10 x 10 mm 48 pin iLCC 9.5 x 9.5 mm 63-pin iBGA

ORDERING INFORMATION

Table 2. AVAILABLE PART NUMBERS

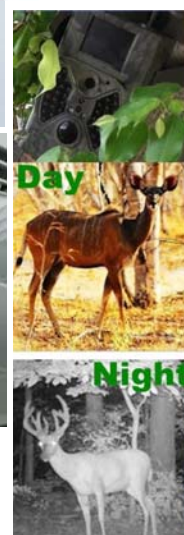
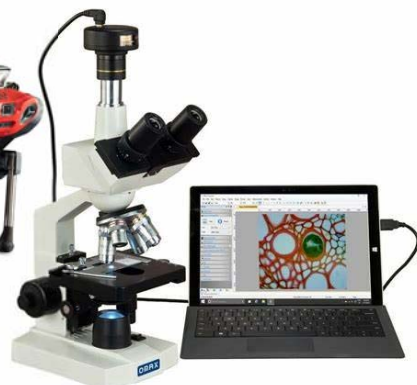
Part Number	Product Description	Orderable Product Attribute Description
AR0331SRSC00SHCA0-DRBR	48-pin iLCC HiSPi, 0° CRA	Dry Pack without Protective Film, Double Side BBAR Glass
AR0331SRSC00SHCAD3-GEVK	48-pin iLCC HiSPi, 0° CRA	Demo Kit 3
AR0331SRSC00SHCAD-GEVK	48-pin iLCC HiSPi, 0° CRA	Demo Kit
AR0331SRSC00SHCAH-GEVB	48-pin iLCC HiSPi, 0° CRA	Demo Board
AR0331SRSC00SUCA0-DPBR	48-pin iLCC Parallel, 0° CRA	Dry Pack with Protective Film, Double Side BBAR Glass
AR0331SRSC00SUCA0-DRBR	48-pin iLCC Parallel, 0° CRA	Dry Pack without Protective Film, Double Side BBAR Glass
AR0331SRSC00SUCAD3-GEVK	48-pin iLCC Parallel, 0° CRA	Demo Kit 3
AR0331SRSC00SUCAD-GEVK	48-pin iLCC Parallel, 0° CRA	Demo Kit
AR0331SRSC00SUCAH-GEVB	48-pin iLCC Parallel, 0° CRA	Demo Board
AR0331SRSC00XUEAD3-GEVK	63-pin iBGA	Demo Kit 3
AR0331SRSC00XUEAD-GEVK	63-pin iBGA	Demo Kit
AR0331SRSC00XUEAH-GEVB	63-pin iBGA	Demo Board
AR0331SRSC00XUEE0-BY-DRBR	63-pin iBGA, 0° CRA	Dry Pack without Protective Film, Double Side BBAR Glass
AR0331SRSC00XUEE0-DPBR	63-pin iBGA, 0° CRA	Dry Pack with Protective Film, Double Side BBAR Glass
AR0331SRSC00XUEE0-DRBR	63-pin iBGA, 0° CRA	Dry Pack without Protective Film, Double Side BBAR Glass
AR0331SRSC00XUEE0-DRBR1	63-pin iBGA, 0° CRA	Dry Pack without Protective Film, Double Side BBAR Glass



Cameras Applications



IMAGING DEVICES





Camera Reliability Test

Reliability Inspection Item			Testing Method	Acceptance Criteria
Category		Item		
Environmental	Storage Temperature	High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation
		Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature	High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation
		Low -20°C 24 Hours	Temperature Chamber	No Abnormal Situation
	Humidity	60°C 80% 24 Hours	Temperature Chamber	No Abnormal Situation
	Thermal Shock	High 60°C 0.5 Hours Low -20°C 0.5 Hours Cycling in 24 Hours	Temperature Chamber	No Abnormal Situation
Physical	Drop Test (Free Falling)	Without Package 60cm	10 Times on Wood Floor	Electrically Functional
		With Package 60cm	10 Times on Wood Floor	Electrically Functional
	Vibration Test	50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional
		50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional
		50Hz Z-Axis 2mm 30min	Vibration Table	Electrically Functional
	Cable Tensile Strength Test	Loading Weight 4 kg 60 Seconds Cycling in 24 Hours	Tensile Testing Machine	Electrically Functional
Electrical	ESD Test	Contact Discharge 2 KV	ESD Testing Machine	Electrically Functional
		Air Discharge 4 KV	ESD Testing Machine	Electrically Functional
	Aging Test	On/Off 30 Seconds Cycling in 24 Hours	Power Switch	Electrically Functional
	USB Connector	On/Off 250 Times	Plug and Unplug	Electrically Functional





Camera Inspection Standard

Inspection Item		Inspection Method	Standard of Inspection
Category	Item		
Appearance	FPC/ PCB	Color	Major Difference is Not Allowed.
		Be Torn/Chopped	Copper Crack Exposure is Not Allowed.
		Marking	Clear, Recognizable (Within 30cm Distance)
	Holder	Scratches	The Inside Crack Exposure is Not Allowed
		Gap	Meet the Height Standard
		Screw	Make Sure Screws Are Presented (If Any)
		Damage	The Inside Crack Exposure is Not Allowed
	Lens	Scratch	No Effect On Resolution Standard
		Contamination	No Effect On Resolution Standard
		Oil Film	No Effect On Resolution Standard
		Cover Tape	No Issue On Appearance.
Function	Image	No Communication	Test Board Not Allowed
		Bright Pixel	Black Board Not Allowed In the Image Center
		Dark Pixel	White board Not Allowed In the Image Center
		Blurry	The Naked Eye Not Allowed
		No Image	The Naked Eye Not Allowed
		Vertical Line	The Naked Eye Not Allowed
		Horizontal Line	The Naked Eye Not Allowed
		Light Leakage	The Naked Eye Not Allowed
		Blinking Image	The Naked Eye Not Allowed
		Bruise	Inspection Jig Not Allowed
		Resolution	Chart Follows Outgoing Inspection Chart Standard
		Color	The Naked Eye No Issue
		Noise	The Naked Eye Not Allowed
		Corner Dark	The Naked Eye Less Than 100px By 100px
		Color Resolution	The Naked Eye No Issue
Dimension		Height	The Naked Eye Follows Approval Data Sheet
		Width	The Naked Eye Follows Approval Data Sheet
		Length	The Naked Eye Follows Approval Data Sheet
		Overall	The Naked Eye Follows Approval Data Sheet

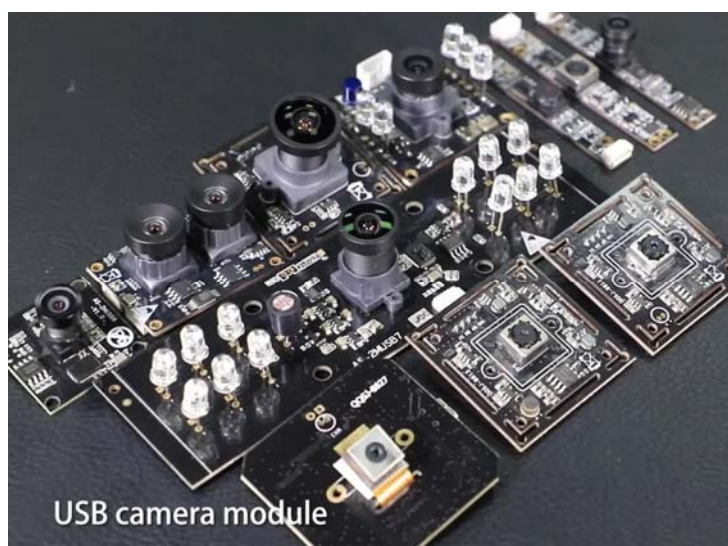


Company HAMPO

Dongguan Hampo Electronic Technology Co., Ltd. was established in 2015, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. Hampo is occupying 150,000 square feet automated plants with 500 employees of annual throughput 180,000,000 units cameras.

Hampo provides OEM, ODM design, contract manufacturing, and builds the camera products. You may provide the requirements to us, even with a hand draft, our sales and engineering work together to meet your needs. We consider ourselves your last-term partner in developing practical and innovative solutions.

Our team covers everything from initial concept development to mass produced product. Hampo specializes in customized camera design, raw material, electronic engineering, firmware/software development, product testing, and packing design. Our experienced strategic supply systems offer a robust and dependable manufacturing capacity for orders of various sizes.



Limited Warranty

Hampo provides the following limited warranty if you purchased the Product(s) directly from Hampo company or from Hampo's website, www.hampotech.com. Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. Hampo guarantees that the Product(s) will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date you receive the product ("Warranty Period").

For all Product(s) that contain or develop material defects in materials or workmanship during the Warranty Period, Hampo will, at its sole option, either: (i) repair the Product(s); (ii) replace the Product(s) with a new or refurbished Product(s) (replacement Product(s) being of identical model or functional equivalent); or (iii) provide you a refund of the price you paid for the Product(s).

This Limited Warranty of Hampo is solely limited to repair and/or replacement on the terms set forth above. Hampo is not reliable or responsible for any subsequent events.





Hampo Strength

Powerful Factory



Professional Service



Promised Delivery

