# HAMPO-USB-0511-V1.0

## 2MP AR0230 RX2719 M12 Fixed Focus USB 2.0 Camera Module

HAMPO-USB-0511-V1.0 is a synchronized dual lens USB camera module, with 1/2,7" CMOS AR0230 & RXS2719 image sensor, the max resolution is 1920*1080P @30fps for each camera,delivery 96dB of wide dynamic range. supports various AI frameworks and human detection with high recognition accuracy, widely used for binocular stereo vision secondary development which directly simulates the manner of human eyes observing one scene from two different viewpoints. Like Robot vision, Virtual reality, Augmented Reality, biometric Retina analyze, 3D measurement, People Counting & Tracking etc application.

Key Features

- Synchronized dual lens camera module
- Full HD 1080P Resolution
- Excellent WDR Technology
- Best Universal Compatibility: Dual lens camera module support USB 2.0 OTG,plug&play. USB camera is versatile for Skype, OBS, Zoom, Go To Meeting, Facebook LIVE, and YouTube Live streaming services etc. Widely works with Win XP/Vista/Windows 7/8,Windows 10 Linux.

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| Sensor | AR0230 |
|---|---|
| Resolution | 2 MP |
| Frame Rate | 30fps |
| Sensor Type | 1/2.7" |
| Pixel Size | 3um x 3um |
| EFL | 2.05 mm |
| F.NO | 2.5 |
| Dynamic Range | 96 dB |
| View Angle | 95°(DFOV) |
| Lens TTL | 15.29 mm |
| Module Type | Fixed Focus |
| Lens Model | HAMPO-LENS-7021 |
| Interface | USB 2.0 |
| Output Format | YUY2/MJPG |
| Auto Control | Saturation, Contrast, Acutance<br>White Balance, Exposure |
| Audio | Digital Mic |
| Input Voltage | DC 5V |
| Working Current | Max 500mA |
| PCB Size | 38mm*28mm |
| System Compatibility | Windows XP (SP2, SP3), Vista, 7, 8, 10, 11<br>Android, Mac OS, Linux or OS with UVC Driver<br>Raspberry Pi by USB Port |
| Software for USB Camera | AMCAP, Webcam Viewer, V4L2 Controls<br>Contacam, VLC Player, MotionEye OS<br>iSpy, ZoneMider, Yawcam |
| Operating Temperature | -30°C to +85°C |
| Mount | M12*P0.5mm |

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

HI-SPEED CERTIFIED USB 2.0 Windows ANDROID Mac OS Linux Raspberry Pi

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| | |
|---|---|
| **Sensor** | **RX2719** |
| **Resolution** | 2 MP |
| **Frame Rate** | 30fps |
| **Sensor Type** | 1/2.7" |
| **Pixel Size** | 3.0 um x 3.0 um |
| **EFL** | 2.05 mm |
| **F.NO** | 2.5 |
| **Dynamic Range** | 76 dB |
| **View Angle** | 95°(DFOV) |
| **Lens TTL** | 15.29 mm |
| **Module Type** | Fixed Focus |
| **Lens Model** | HAMPO-LENS-7021 |
| **Interface** | USB 2.0 |
| **Output Format** | YUY2/MJPG |
| **Auto Control** | Saturation, Contrast, Acutance<br>White Balance, Exposure |
| **Audio** | / |
| **Input Voltage** | DC 5V |
| **Working Current** | Max 500mA |
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| **System Compatibility** | Windows XP (SP2, SP3), Vista, 7, 8, 10, 11<br>Android, Mac OS, Linux or OS with UVC Driver<br>Raspberry Pi by USB Port |
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# HAMPO-USB-0511-V1.0
# 2MP AR0230 RX2719 M12 Fixed Focus USB 2.0 Camera Module

Top View

Side View

Bottom View

Side View

# HAMPO-USB-0511-V1.0
# 2MP AR0230 RX2719 M12 Fixed Focus USB 2.0 Camera Module

| FORMAT | RESOLUTION | FRAME RATE |
|---|---|---|
| | | USB 2.0 |
| MJPG | 640 x 480 (VGA) | **30 FPS** |
| | 1024 x 768 (Super VGA) | **30 FPS** |
| | 1280 x 720 (720P) | **30 FPS** |
| | 1920x 1080 (2MP) | **30 FPS** |
| YUY2 | 640 x 480 (VGA) | **30 FPS** |
| | 1024 x 768 (Super VGA) | **10 FPS** |
| | 1280x 720 (720P) | **10 FPS** |
| | 1920 x 1080 (2MP) | **5 FPS** |

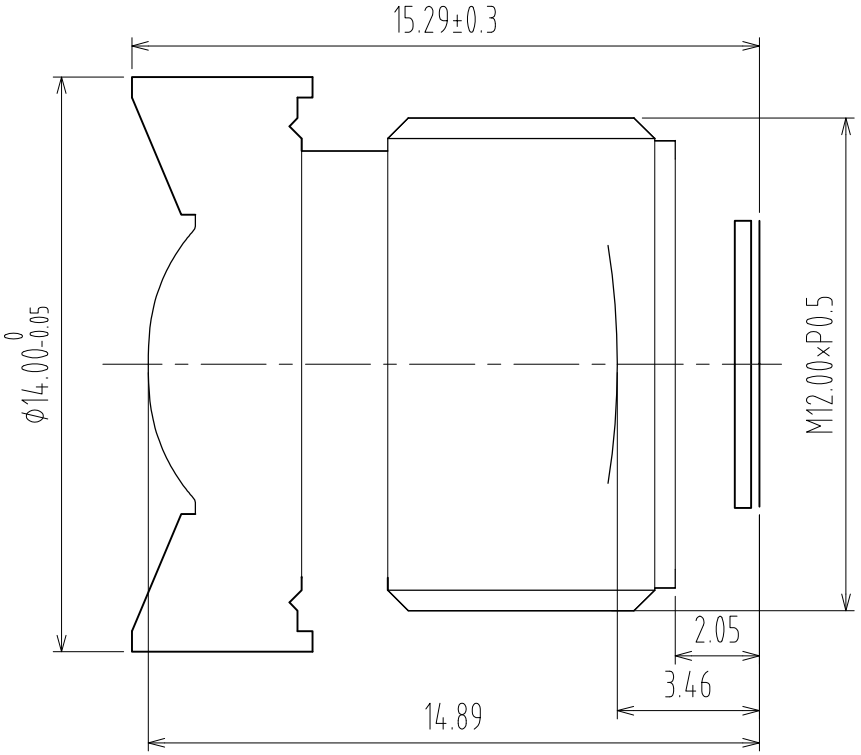
colorchecker CLASSIC
x-rite

colorchecker CLASSIC
x-rite

# Lens Specification

| | | | | |
|---|---|---|---|---|
| 1 | EFL | | 3.0 | |
| 2 | B.F.L | | 3.46 | |
| 3 | F.F.L | | 2.05 | |
| 4 | F.NO | | 2.5 | |
| 5 | Sensor | | 1/3'' | 1/2.7'' |
| 6 | FOV | HFOV | 76° | 86° |
| | | VFOV | 60° | 55° |
| | | DFOV | 89° | 95° |
| 7 | TV distortion | | 0.9% | 1% |
| 8 | Thread size | | M12×P0.5 | |
| 9 | Structure | | 2G2P | |
| 10 | IR filter | | 650 IR | |

Tavg>=88% @ 420-600 nm
T=50% @ 650±10nm
Tavg<=5% @ 700-1050 nm




| 标记 | 变 更 事 项 | 时间 | 姓名 | | 材料 | | | |
|---|---|---|---|---|---|---|---|---|
| ① | | | | | | | | |
| ② | | | | | | | | |
| ③ | | | | | 单位 | mm | 比例 | 1/1 |
| ④ | | | | | 页码 | 1/1 | 数量 | 1 |
| 版 本 | | 核 准 | | 审 核 | | 制 图 | | |
| | | | | | | | | |

名 称:

# Product Overview

## AR0230AT: 2 MP 1/3" CMOS Image Sensor

For complete documentation, see the data sheet.

The AR0230AT is a 1/2.7-inch CMOS digital image sensor with an active-pixel array of 1928Hx1088V. It captures images in either linear or high dynamic range modes, with 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 AR0230AT 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.

## Features

- High Dynamic Range

## Applications

- Automotive

## Part Electrical Specifications

| Product | Compliance | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type | Pixel Size (µm) | Output Interface | Color | Package Type |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AR0230ATSC00XUEA0-DRBR | AEC Qualified<br>PPAP Capable<br>Pb-free<br>Halide free | Active | | | | | | | | | IBGA-80 |
| AR0230ATSC00XUEA0-DRBR-E | Pb-free<br>Halide free | Active | CMOS | 2.1 | 30 | 1/2.7 inch | Electronic Rolling and Global Reset Release | 3.0 x 3.0 | Parallel<br>HiSPi™ | RGB | IBGA-80 |
| AR0230ATSM00XUEA0-DRBR-E | Pb-free<br>Halide free | Active | CMOS | 2.1 | 30 | 1/2.7 inch | Electronic Rolling and Global Reset Release | 3.0 x 3.0 | Parallel<br>HiSPi™ | Mono | IBGA-80 |

**For more information please contact your local sales support at www.onsemi.com.**

**Created on: 9/30/2017**

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High quality RXS2719 is a 1/2.7 inch 1080p format CMOS image sensor. It provides high quality digital images and high-definition (HD) video. RXS2719 focuses on products including Security Surveillance systems, IP cameras and HD analog cameras.

By introducing advanced 3um pixel architecture, RXS2719 achieves excellent low-light sensitivity, signal-to-noise ratio, full-well capacity, quantum efficiency and low-power consumption. The default mode and programmable mode of it allow a more convenient way for controlling the parameters of frame size, exposure time, gain value, and so on. It also offers the following image control functions: mirror and flip, windowing, auto black level calibration, defective pixel correction, black sun cancellation, and so forth.

RXS2719 supports high frame rate up to 30fps@1080p format though the DVP interface or MIPI interface. These prominent features integrated in RXS2719 make it become the best-in-class image sensor, and will bring users vivid pictures and excellent experience.

**Trademark Information**

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Color CMOS 1080p (1920 x 1080) HD image sensor with OmniPixel3-HS™ technology
datasheet (CSP)
PRELIMINARY SPECIFICATION

Version 1.15
December 2017

## applications

- Security Surveillance systems
- IP cameras
- HD analog cameras

**Ordering Information**

**RXS2719 (color, lead-free)**
**66-pin CSP**

## features

- Support 1080p (2Mega, 1920x1080) resolution
- Support windowing
- Support mirror and flip function
- Support auto black level calibration
- Support defective pixel correction
- Support black sun cancellation
- SCCB control interface for register programming
- Support binning function
- Support 10-bit / 8-bit RAW image data output
- Support MIPI 2-lane serial output interface
- Support DVP 10-bit / 8-bit output interface
- Low power mode
- Support multi-camera synchronous function

## key specifications (typical)

- active array pixel: 1920 x 1080
- power supply:
  core: 1.35V~1.65V (1.5V nominal)
  analog: 2.6V~3.0V (2.8V nominal)
  I/O: 1.7V~3.0V
- power requirements:
  active: < 200mW
- temperature range:
  operating: -40°C~85°C junction temperature
  stable: -20°C~60°C junction temperature
- output interfaces:MIPI 2-lane / DVP
- output formats:RAW10 / RAW8
- lens size: 1/2.7”
- lens chief ray angle: 12°linear
- input clock frequency: 6~27 MHz
- maximum image transfer rate:
  1080p: 30fps
- shutter: rolling
- sensitivity: 2080mV/Lux-sec
- max S/N ratio: 39dB
- dynamic range: 76dB
- dark current: 10mV/sec@60℃
- pixel size: 3μm x 3μm
- image area:5808 μm x 3288 μm
- Package dimension: CSP: 6961 μm x 4770 μm

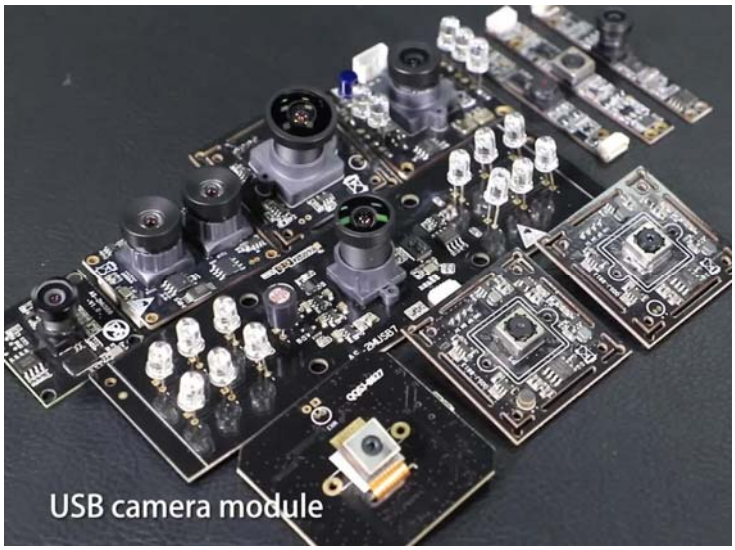
**note** Power requirements specifications are estimated values and are subject to change when measured data using real silicon is available.

**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).

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**Hampo Strength**

Powerful Factory

Professional Service

Promised Delivery

翰普科技
HANPUKEJI

**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<br>Low -20°C 0.5 Hours<br>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<br>60 Seconds<br>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<br>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 | The Naked Eye | Major Difference is Not Allowed. |
| | | Be Torn/Chopped | The Naked Eye | Copper Crack Exposure is Not Allowed. |
| | | Marking | The Naked Eye | Clear, Recognizable (Within 30cm Distance) |
| | Holder | Scratches | The Naked Eye | The Inside Crack Exposure is Not Allowed |
| | | Gap | The Naked Eye | Meet the Height Standard |
| | | Screw | The Naked Eye | Make Sure Screws Are Presented (If Any) |
| | | Damage | The Naked Eye | The Inside Crack Exposure is Not Allowed |
| | Lens | Scratch | The Naked Eye | No Effect On Resolution Standard |
| | | Contamination | The Naked Eye | No Effect On Resolution Standard |
| | | Oil Film | The Naked Eye | No Effect On Resolution Standard |
| | | Cover Tape | The Naked Eye | 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 |

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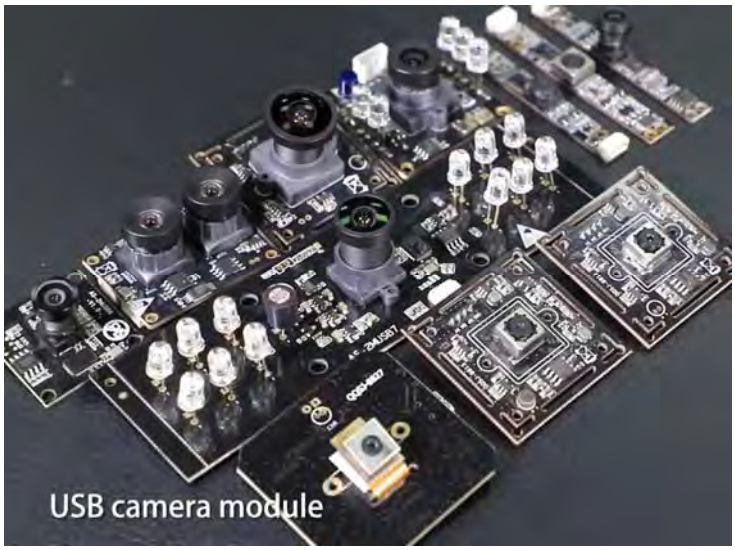


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