Datasheet

IMX291 USB Camera Module

B0520

CONTENT

Version	Compile	Auditing	Authorize	DATE
V1.0	Bin L	Kai Z	Lee J	05.11.2024

1. Purpose

In order to fully describe the technical specifications referred to in technical cooperation, it usually needs to be expressed by a complete set of documents. As part of this, this datasheet specifies the specific technical specifications that a camera module should meet and is binding on this model.

2. Efficacity

This datasheet shall prevail if it's inconsistent with the specifications in the general technical specifications of such goods.

3. Technical Parameters

Image Sensor	
Resolution	2MP
Chroma	Color
Shutter Type	Rolling shutter
Optical Format	1/2.8"
Output Format	MJPG/YUY2/H.264
Pixel Size	2.9 µm x2.9 µm
Sensor Active Area	1937(H)×1097(V)
Frame rate	MJPG: 30fps@1920×1080, 1280×720, 800×600, 640×480, 320×240; YUY2: 30fps@640×480, 320×240; 10fps@1280×720,800×600; 5fps@1920×1080; H.264: 30fps@1920×1080, 1280×720, 800×600, 640×480, 320×240
Lens	
Focus Type	Manual Focus
FOV	95°(D)×82°(H)×66°(V)
Lens Mount	M12 Lens
F.NO	F2.5
Focal Length	3.7 mm
TV Distortion	< -13%
IR Sensitivity	Integral IR-cut filter, visible light only
Default Focus Range	1m-∞
USB Interface	
Interface	USB 2.0 Device
Connector	USB Type-C/USB A
UVC Compliant	No additional drivers required
Electrical and Mechanical	
Operating Voltage	DC 5V +/- 5%

Operating Temp.	32°F-158°F (0°C to 70°C)
Power Requirements	Max: 1.1W
Camera Board Size	19.5×15×17.3 mm
Functionality and Compatibility	
Supported OS	Windows, Linux, Android and Mac OS
Recommend Sample Application	Amcap for Windows
UVC Controls	Brightness, Hue, Contrast, Saturation, Sharpness, Gamma, White Balance (Auto/Manual), Gain, Backlight Comp, Exposure (Manual/Auto)

4. Dimension Diagrams

Unit: mm

5. Imaging
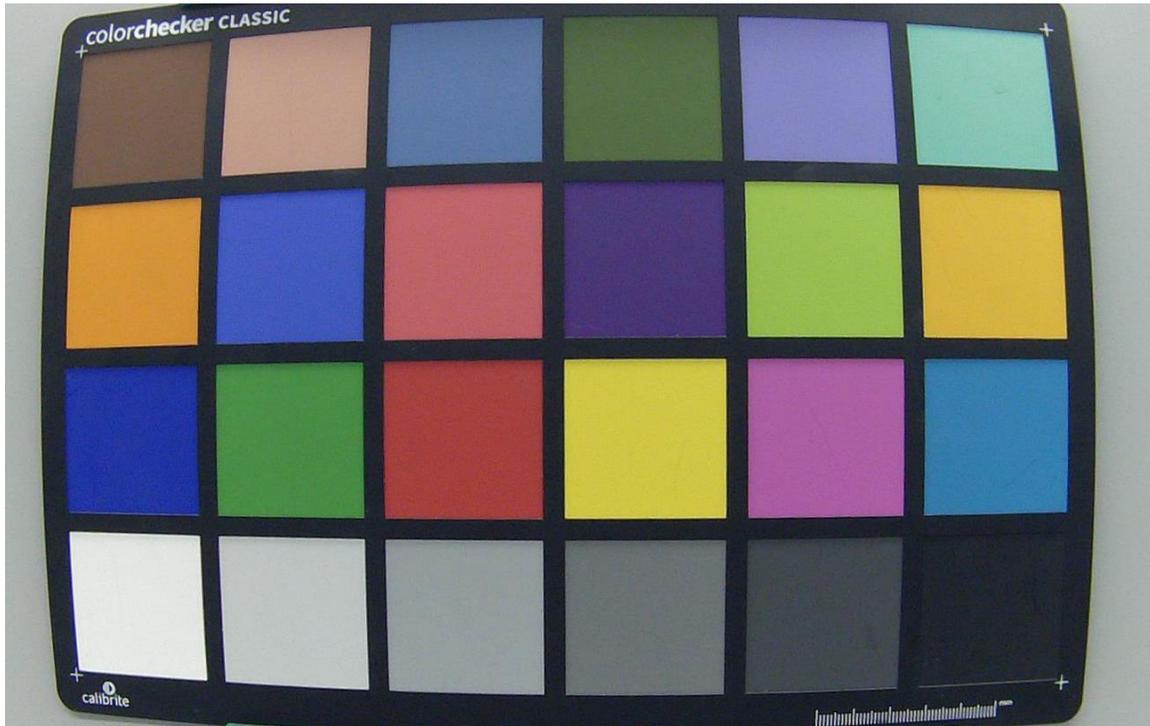
6. Camera Parameters Interface
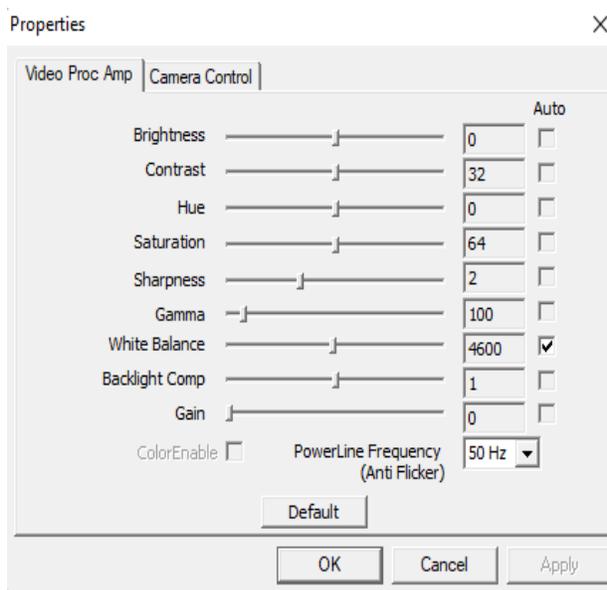
- Video Proc Amp   **- Camera Control**
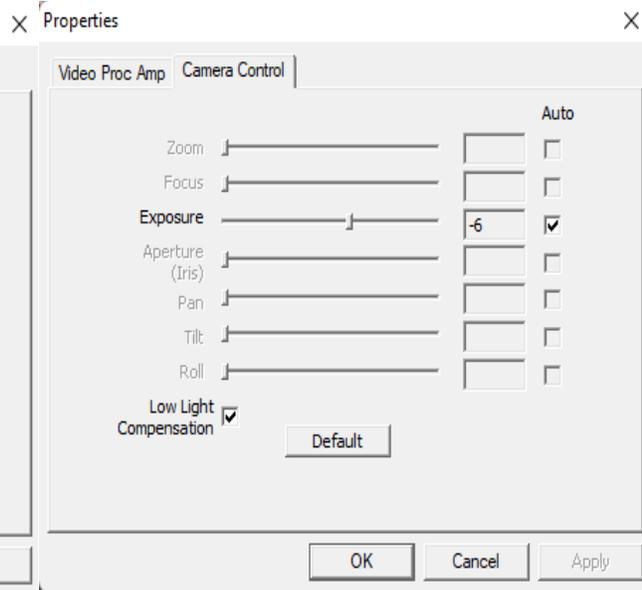
- Video Capture Pin
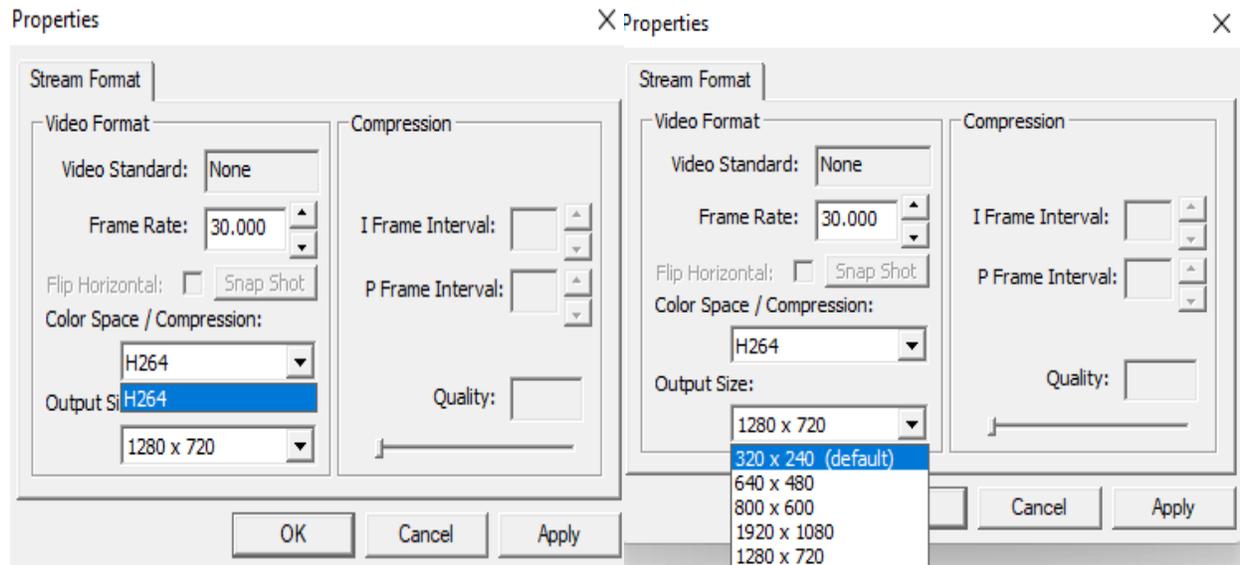
7. How to Capture H.264 Streaming

Download the specific software, access the camera and select the H264 format to capture the stream.

- H.264 Streaming on Amcap
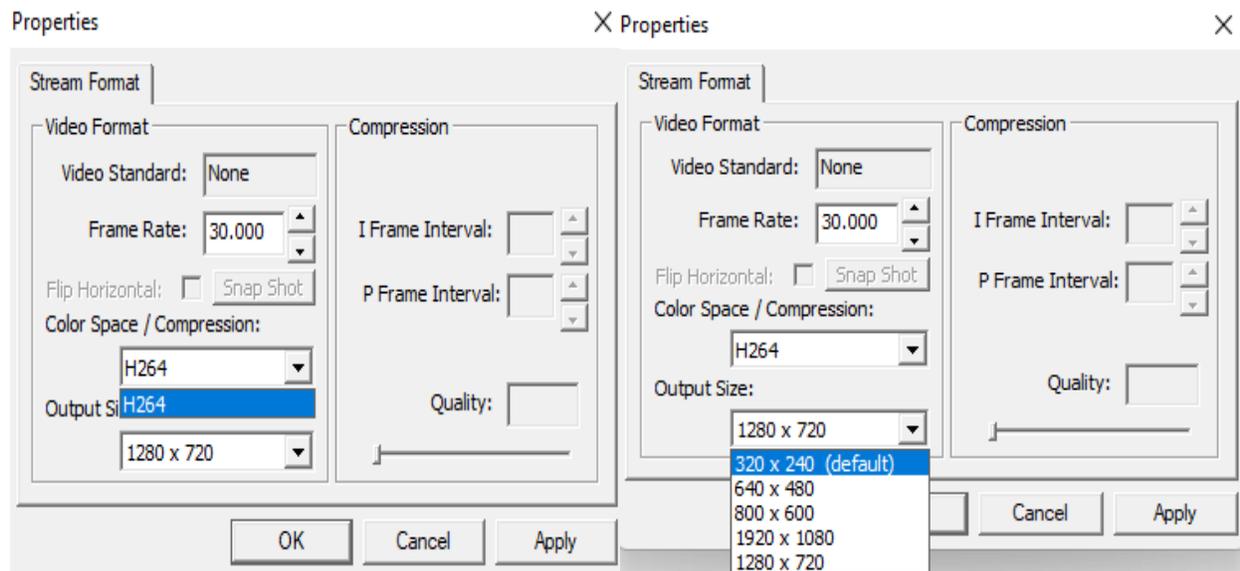
- H.264 Streaming on PotPlayer

Open> Open Webcam/Other Device>Select Arducam USB Camera
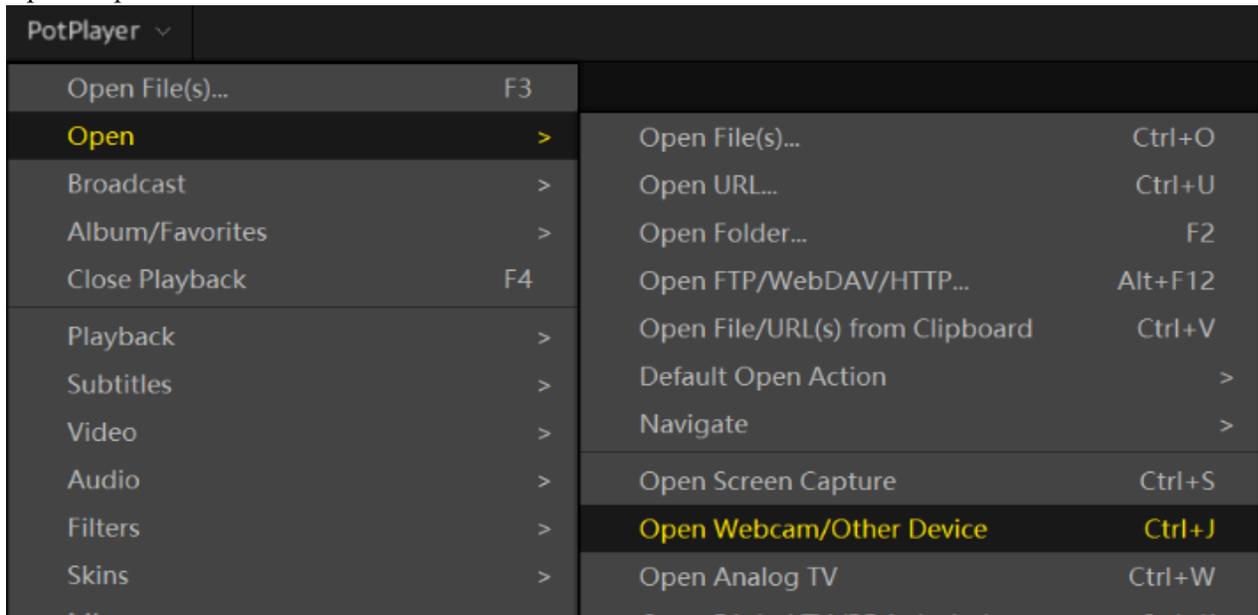
Filters>Arducam USB Camera>Pin Properties
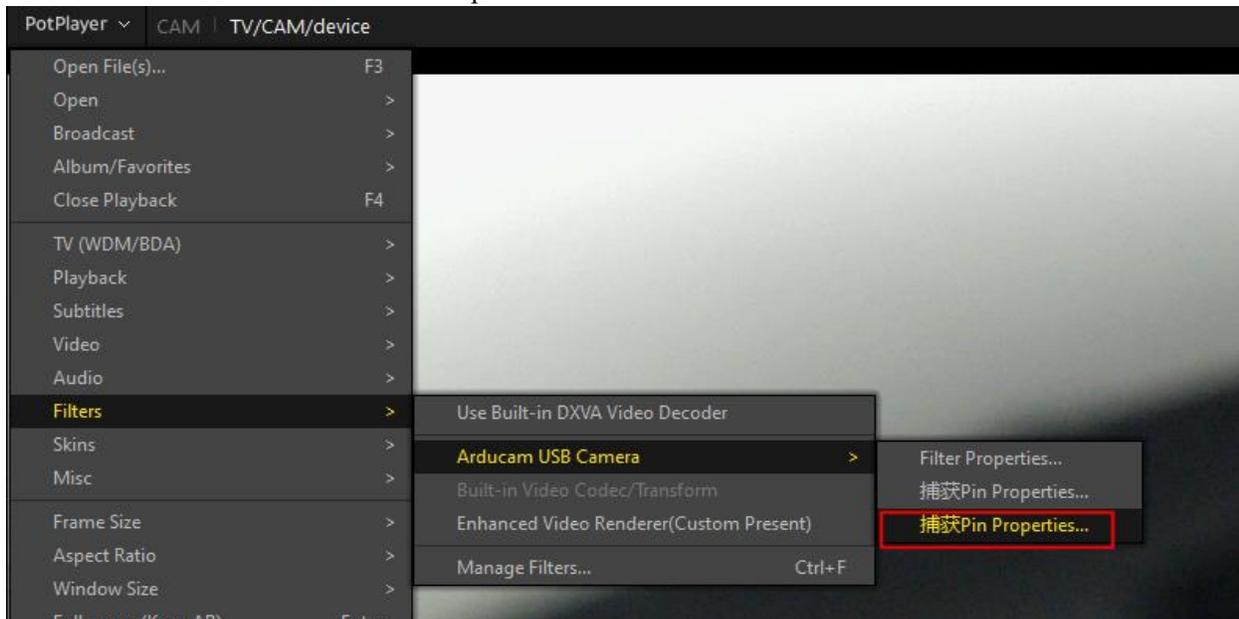
8. Function Inspection Criteria

8.1 Function definition:

Camera module electrical performance and image quality.

8.2 Inspection methods

- Staff: Visual inspection personnel need to be trained and have normal color recognition ability. Their vision should be above 1.0 (or more than 1.0 after correction is acceptable), and their color discrimination ability can pass standard tests.

- Tool: Connect the computer, and inspect images with software.

- Distance and Time

  Observation distance: 30~55cm

  Observation time for each surface: 3~5seconds

- Inspection condition: Visual inspection should be performed under unobtrusive fluorescent lamps, and its minimum illumination should be above 100 feet of candlelight, or 60W fluorescent lamps, inspected at a 1.5m distance.

8.3 Accept criteria

- The image has no mess, color screen, and discoloration.

- There is no white spot, black spot, dirt or dark angle in the image.

- The image is same clear on all corners

9. Visual Inspection Criteria

9.1 The definition of the appearance

Camera module appearance.

9.2 Test methods

- Staff: Visual inspection personnel need to be trained and have normal color recognition ability. Their vision should be above 1.0 (or more than 1.0 after correction is acceptable), and their color discrimination ability can pass standard tests.

- Distance and Time

  Observation distance: 50~75cm,

  Observation time for each surface: 3~5seconds

- Inspection condition: Visual inspection should be performed under unobtrusive fluorescent lamps,

and its minimum illumination should be above 100 feet of candlelight, or 60W fluorescent lamps, inspected at 1.5m distance.

● Observation angle: Observation angle between 40°~50°.

9.3 Accept criteria

● Cleanliness: Parts must be free of stains, dust, grease, and other stains. Smudges due to transportation materials are acceptable if they can be blown away or wiped off.

● Assembly surface: The parts to be assembled should avoid scratches, gouges, dents, bends, cracks, indentations, abrasions or other defects caused by improper assembly.

10. Reliability Test

Items	Condition	Specification
High Temperature Test	Temp.: 80°C	No abnormal
	Time: 96H	
Low Temperature Test	Temp: -20°C	No abnormal
	Time: 96H	
Humidity Test	Temp: 60°C	No abnormal
	Humidity: 80-85％	
Cable Tensile Strength Test	Time: 24H	No abnormal
	Loading weight：4KG	
	Time: 60s	
Drop Test	Hight: 60CM	Electric normal
	Number of times: 10	
	On the wood	
Vibration Test	Vibration machine vibration frequency to 50Hz	Electric normal
	Vibration amplitude: 1.5MM；	
USB Connector	Vibration time: 30 Minutes	Electric normal
	Number of times: 250	

11. Packing Request

● Products should be strictly based on product characteristics to develop corresponding packaging standards and follow the implementation to ensure that the product is used within the specified use and storage period, to achieve anti-static, moisture-proof, shock-proof, mildew-proof, anti-barbaric handling and other signs and related warranty requirements. Product packaging should be marked: Supply-side name / logo, Product Model specifications, containing the number, production date /

batch number and order number.

- The product's outer packaging should be marked with: supplier name / sign, product model specification, built-in quantity, production date / batch number and order number.

- The packing and packing scheme are based on the customer's requirements, and the two parties will negotiate the specific details. The sealed samples shall prevail.

12. Others

- Changes to this acknowledgement need to be confirmed by both parties, and any modification by either party is invalid.

- This acknowledgment must be signed and returned within seven working days of receipt by the client, late regarded as the default.