

Built-in Camera and Microphone Specification

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1、Product description

Video: 48M 1/2" VCM module developed as a USB camera with up to 48M @ 5 fps preview, while supporting 3840*2160 25 fps video output and photography, with next generation ISP and integrated 3D noise reduction. Provides excellent video image results

Audio: optional array 2-8 microphone to achieve 0-8 meters pickup function, with echo elimination, environmental noise suppression operation, amplification and other functions, high audio reproduction.

The product supports UVC/UAC standard protocol and uses standard USB2.0 interface to output audio and video. It is suitable for scenarios such as large screen, video and desktop personal devices.

Video parameters.

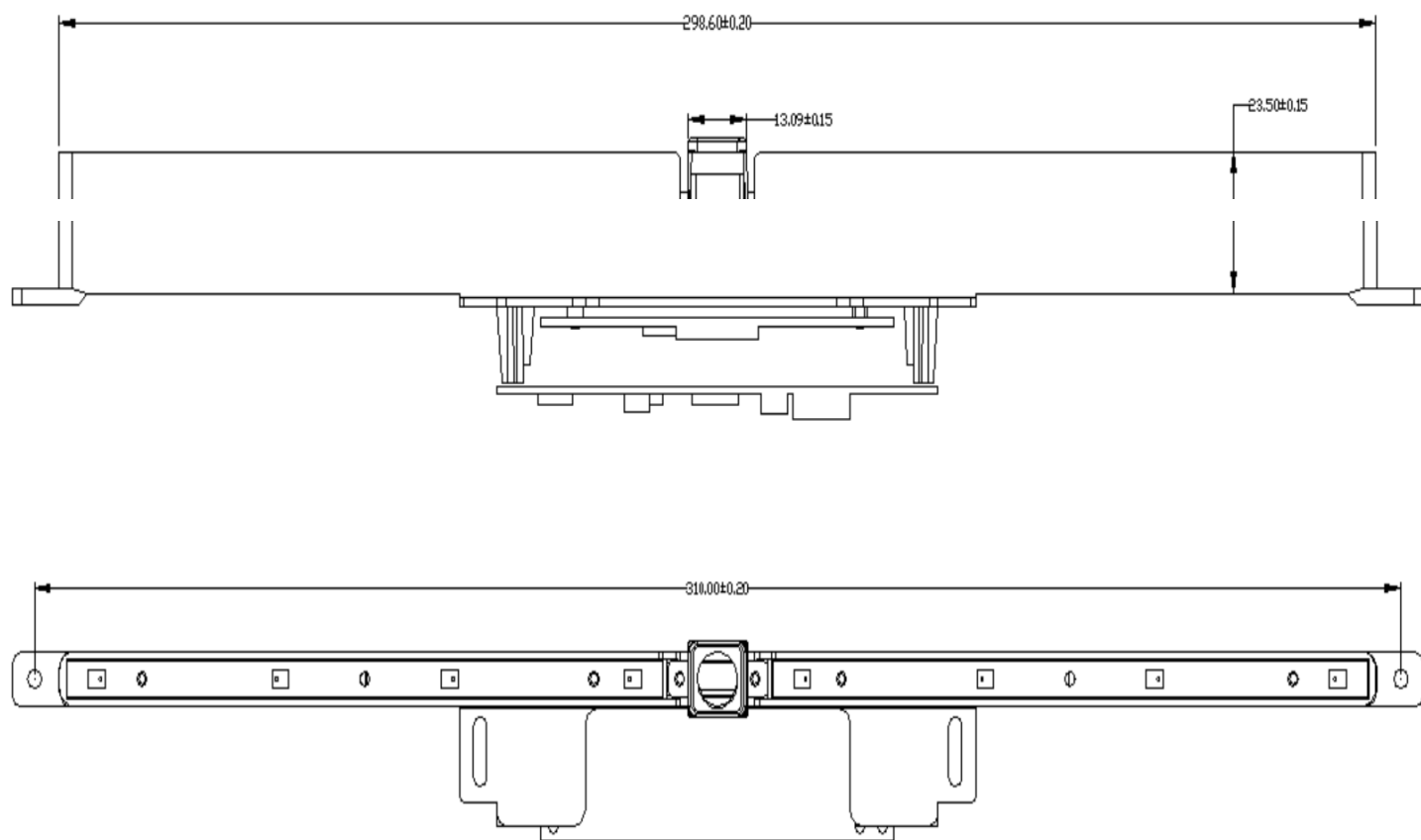
Hardware	Model	SYX-4K	
	Image Sensor	48M 1/2.0	
	Resolution	8000*6000@5fps/ 3840* 2160 @25fps	
	Image Processing	SYX-639	
	Power input	DC5V 500mA, USB power supply	
	Lens	6P, aberration <2% D=82 degrees H=75 degrees V=50 degrees	
	Aperture	F2.2	
	Spotlight	None	
	Depth of Field	10cm~Infinity	
	CCM Size	10*10*5.5mm (specific to the actual module)	
Function	Picture quality adjustment	Automatic (default)	
	Anti-flicker	Support 50HZ / 60HZ	
	Mirroring	Support	
	Electronic Cloud Station	Support for ePTZ (supported at resolutions of 1080p and below)	
	Image quality improvement	2D/3D Noise Reduction	
	Audio	Optional features.	
	UVC Video	UVC, compatible with Windows/MAC OS/Linux/Android systems MJPG. 4000x3000@15fps 3840x2160@25fps 1920*1080 @25fps s 1280x720@30fps	
Other		USB port USB2.0 interface, UVC/UAC standard protocol, USB powered	
		Extensible custom UVC commands	

Audio Parameter:

Projects	Specification
Microphone Type	Linear Equidistant Array Microphone
Number of digital mikes	8
Signal-to-noise ratio	67db
Sensitivity	-26±3db
Pickup distance	0-8 meters
Sampling rate	16KHz
Number of sampling bits	16bit
Function	Ehco cancellation Beamforming Environmental noise suppression Sound source localization
Number of pickup plates	2
Pickup board size	133.5×6×1.5mm
Main control board size	100×17×1mm
System Compatible	Windows 7/10; Andirod 7.0 and above
Wires	FFC

Projects	Specification
Communication Type	USB2.0/3.0
Power supply method	USB
Operating Voltage	USB 5V±5%
Average current	<300mA

2. Structure diagram



3. Inspection standard

3.1 Sampling

MIL-STD-105E Class II normal primary sampling level, tolerance level: primary deficiency AQL=0.40, secondary deficiency AQL=1.5. test standard illumination 1000±500lux.

3.2 Testing Standard

Item	Detail
Black Spot	Black dots are not allowed > 3 consecutive dots, center > 2 pixels; need to pay the picture
White spots	Black dots are not allowed to be consecutive dots > 3 pixels and centers > 2 pixels.
Dirt	Dirty proportion:Sample pictures both sides discuss
Center resolution	For horizontal and vertical 1400 lines, use ISO12233 drawings (center/4 corners : greater than 1400/1300 lines)
Peripheral resolution	Horizontal and vertical 1200 lines, using ISO12233 drawings
Peripheral Light Volume Ratio RI	Difference between center and corner brightness: less than 40% (except for shading correction). Judgment Shading Correction Use
Appearance	No visible damage/scratches are not allowed out of the line in the phone.
Color difference	The chromatic aberration is checked in total for each trial production. Limit samples will determine their.
Resolution Limits	Limit sample, focus range Subjective resolution designation, two limit samples must be provided and should be quantified in a separate table

4. Reliability Item

No.	Item	Process	Requirement
1	Cryogenic storage experiments	Passing the process test	Reduce to -40°C at 1-10°C/min, store for 48H, and return to room temperature at 1-10°C/min.
2	High temperature storage experiment	Passing the process test	The temperature was increased to 80°C at 1-10°C/min, stored for 48H, and restored to room temperature at 1-10°C/min.
3	Cold and hot shock test	Passing the process test	Temperature -40°C, store for 30min, then raise the temperature to 80°C, store for 30min, cycle for 10 Times.
4	High temperature and humidity experiments	Passing the process test	The relative humidity during the change shall not be less than 93±3%, and stored continuously at 65°C with 93% humidity for 96H.
5	Drop test	Passing the process test	The drop height is 1M, 6 faces and 4 corners are dropped once for a cycle, do 3 times cycles (30 drops in total).

5. Cautions

- ①、 This product is a CMOS product, it is sensitive to static electricity, please pay attention to the influence of static electricity when using, handling and storage.
- ②, this product after removing the lens protection film, please do not touch the lens into the light hole with bare hands, so as not to leave finger traces in the light hole affect the quality
- ③. This product is a more precise product and should avoid mechanical collision during use or handling.
- ④, in the process of use, should avoid direct sunlight shooting, so as not to damage the circuit.
- ⑤, in the design, the power supply to this product should use analog LDO, should avoid the use of switching power supplies, such as DC\DC converter, the device may increase the noise, affecting the image quality.
- ⑥, PCB installation with bending must ensure that there is not less than R0.5 angle transition to ensure PCB performance.