YDS CAMERA MODULE

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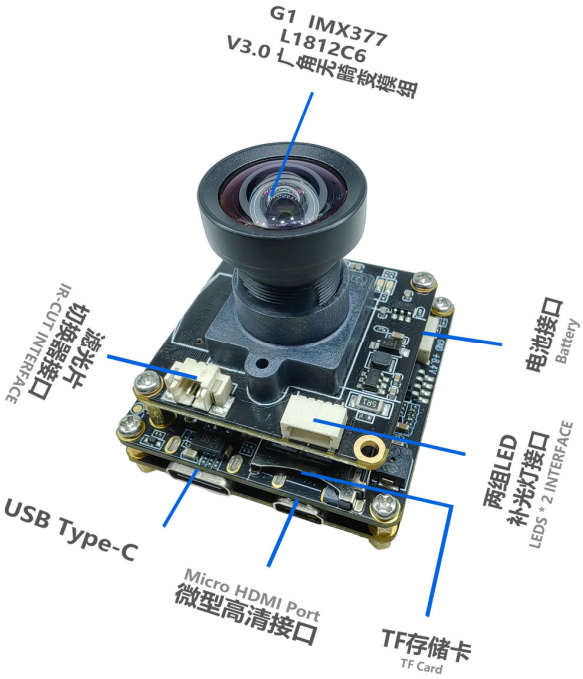
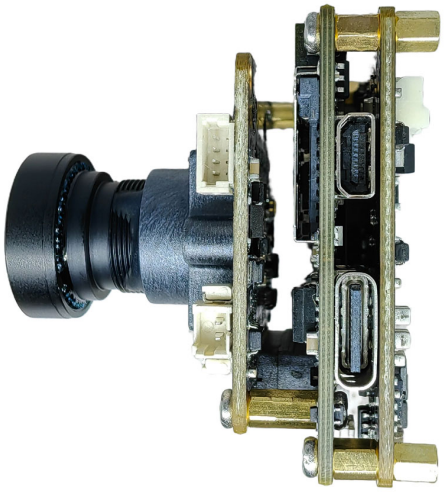
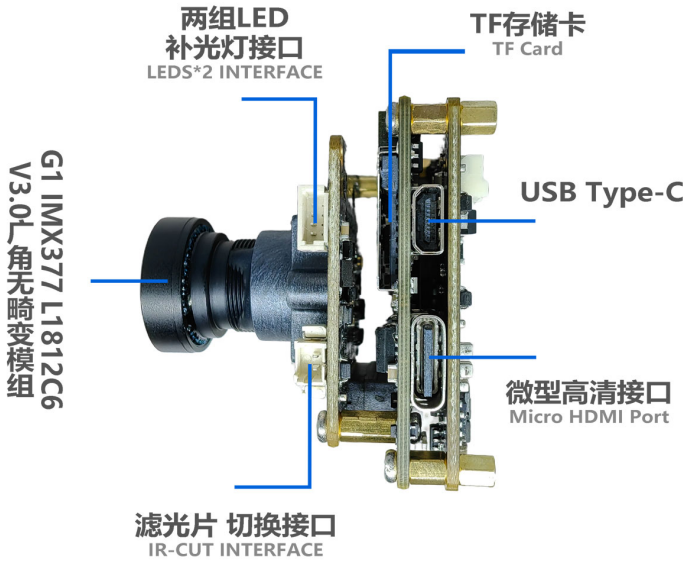
YDS-G1M9+YDS-CMFL1812C6-IMX377 V3.0

Ai Master Board + WiFi Board + 12.35MP Sony IMX377 Fixed Focus Camera Module Development Kit







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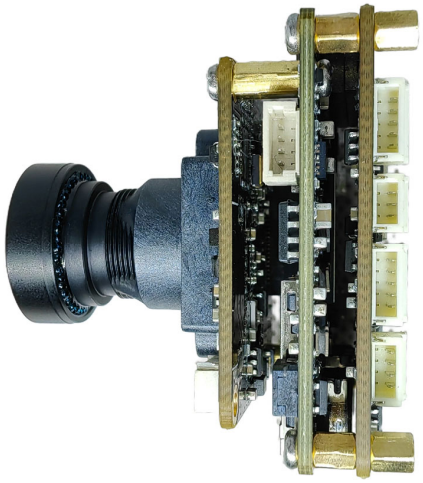

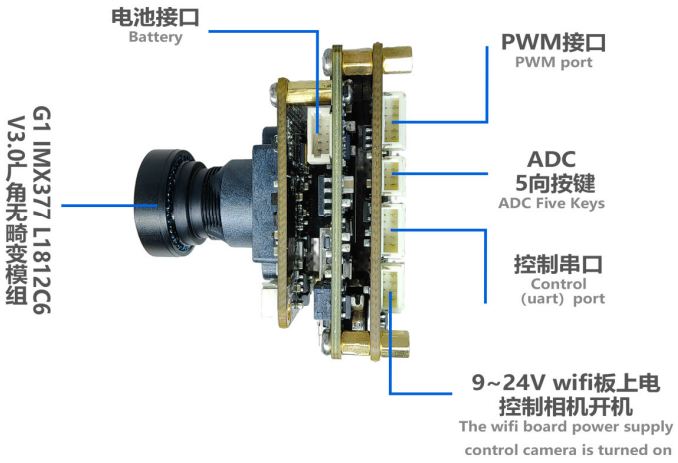

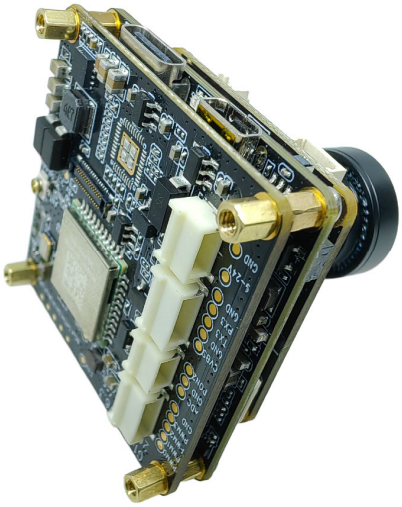

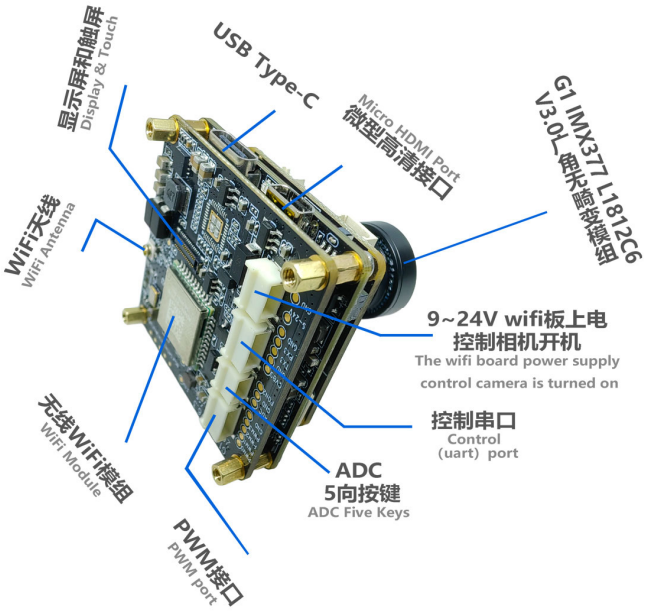

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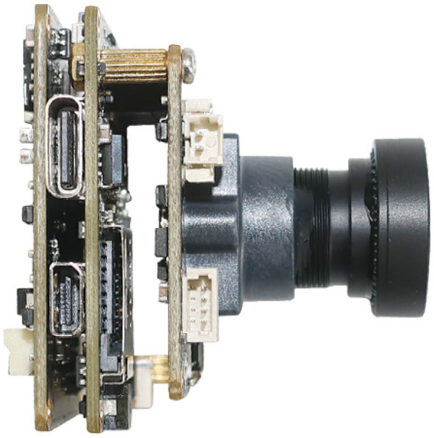

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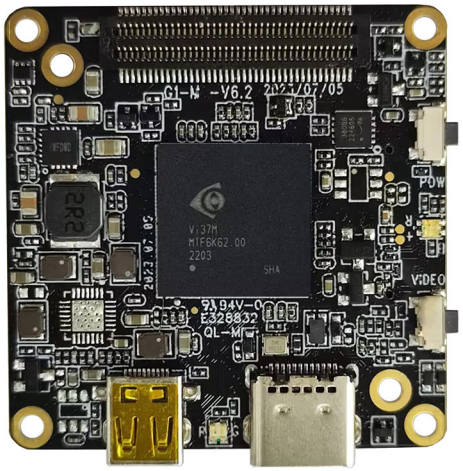
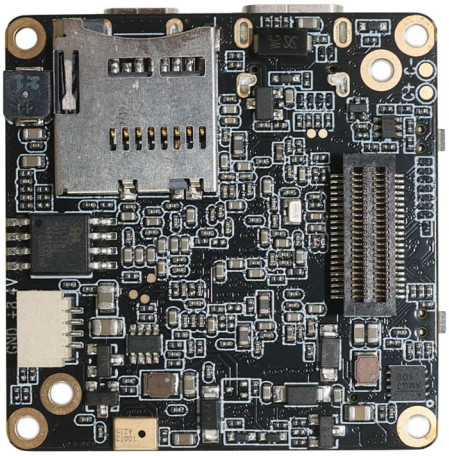
YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board



Front View



Back View

Overview

Equipped with iCatch V39, built-in 2GB DDR3, supports up to 4K@60FPS (differential), 4K@30FPS, 1080P@120FPS H.264 encoded video. Onboard support Type-C, HDMI, TF memory card, recording, 2 control buttons, buzzer, battery power supply, etc.

This master board extension also supports WiFi, LCD display, CVBS, lens module, UART, I2C, SPI, PWM, MIC and other expansion interfaces. The board size is 38x38mm. Widely used in drones, mini DV, wearable devices, sports cameras, face recognition, USB cameras and other camera products.

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YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

Hardware Specifications

Model No.	YDS-G1M9 V6.2
Main Control Chipset (DSP)	iCatch V39
Image Sensor Interface	MIPI
Battery Voltage	7.4V - 7.7V High Voltage Lithium Battery
Storage Type	External TF Card, Supports 8GB - 512GB Class 10 and Above, U3 is Recommended
Type-C Port	Type-C USB 5V Connection to Computer USB Mode Connection to PCCAM (Camera) Mode
LED Indicator Type	Three Color Light (Red, Green, Blue)
2 Control Button Type	Power Button (A), OK Button (B)
Power Supply	Supports 3 Power Supply Methods At The Same Time (1) 5V USB to Type-C Port Power Supply (2) 9V-24V WiFi Board or Network Port board Power Supply (3) 6.8V-8.4V Battery Power Supply (The 3-Axis Gimbal Version Does Not Support 5V USB)
Operating Temperature	-10°C to +60°C Without Housing
Storage Temperature	-20°C to +80°C
Humidity	20% to 80%
PCB Dimensions	38 x 38 mm
PCB Screw Hole Spacing	External (34mm x4), Internal (28mm x2)
PCB Screw Hole Diameter	2 mm
Optional Camera Configuration	(1) YDS-G1M9 V6.2 + Camera (2) YDS-G1M9 V6.2 + Camera + YDS-G1WF V6.3 WiFi Board (3) YDS-G1M9 V6.2 + Camera + YDS-G1NK V6.3 Ethernet Board
Supportive Image Sensors	13MP: IMX258 12MP: IMX377 OS21D40 IMX577 IMX386 IMX378 8MP: IM317 5MP: IMX335 2MP: IMX290 IMX385
Optional Extension Ports	WiFi, Ethernet Network Port, Display, Audio IC, Lens Module, UART, I2C, SPI, PWM, MIC, etc.

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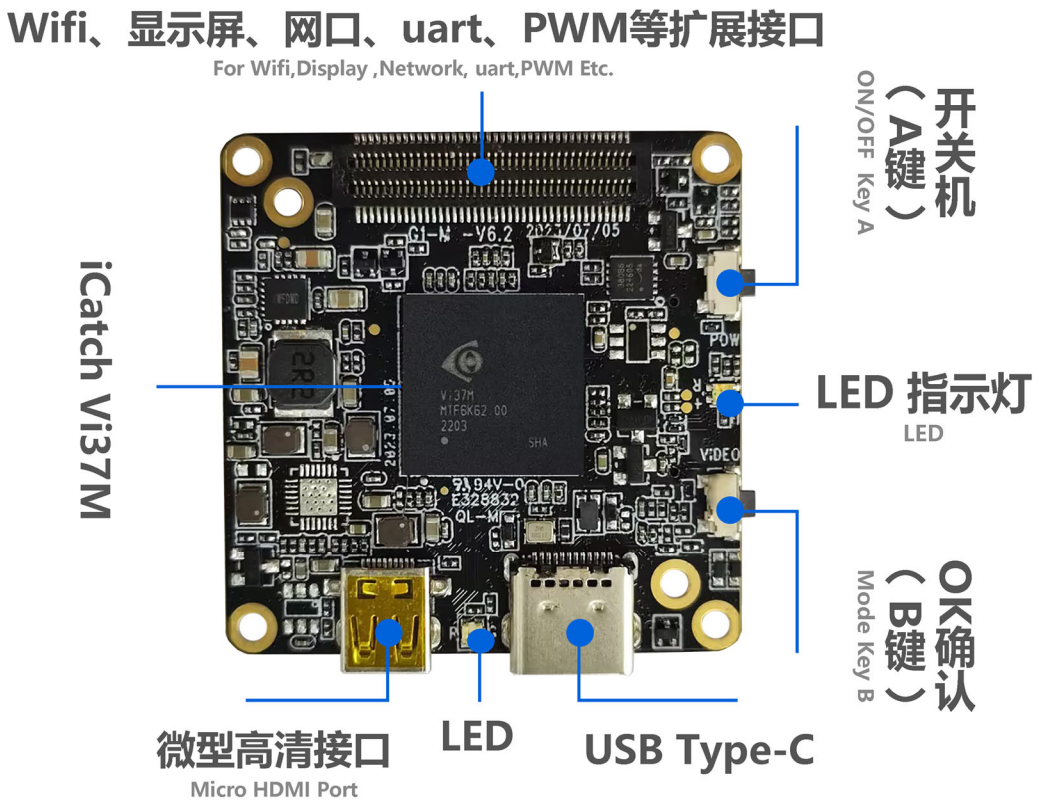
YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

Photo Image Settings

Resolution	20MP, 13MP, 12MP, 10MP, 8MP, 5MP, 3MP, 2MP
Time Lapse Photography	OFF, 3S, 5S, 7S
Continuous shooting	OFF, 3-Shot, 7-Shot, 15-Shot, 30-Shot
White Balance	Auto, Sunny, Cloudy, Fluorescent, Incandescent
Power Frequency	50Hz, 60Hz
Exposure Compensation	EV 0.0, EV 3.0, EV 7.0, EV 10.0, EV 13.0, EV 17.0, EV 20.0, EV -3.0, EV 17.0, EV -10.0, EV -13.0, EV -17.0, EV -20.0
Time Lapse Photo Interval	OFF, 1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 10S, 13S, 15S, 20S, 25S, 30S, 40S, 1min
Time Lapse Duration	No Limit, 1min, 3min, 5min, 10min, 20min, 30min, 1hr, 2hr, 3hr, 5hr
Photo Time Watermark	OFF, Date, Date and Time



YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

Video Settings

Resolution	16:9 (4K, 2.7K, 1080P, 720P) 4:3 (1440P) Currently Only IMX377 Sensor Supports 1440P
Frame Rate	24FPS, 25FPS, 30FPS, 48FPS, 50FPS, 60FPS, 120FPS, 240FPS
Slow Motion Recording	OFF, 4K2X, 1080P4X, 720P8X
Fast Motion Recording	OFF, 2X, 5X, 10X, 15X, 30X
Automatic Recording	OFF, ON
Time Lapse Video Mode	OFF, 1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 10S, 13S, 15S, 20S, 25S, 30S, 40S, 60S
Time Lapse Duration	No Limit, 1min, 3min, 5min, 10min, 20min, 30min, 1hr, 2hr, 3hr, 5hr
Pre-recording	OFF, ON (for Option ON,5 Seconds of Video is Pre-recorded)
EIS Anti-Shake	OFF, ON
Image Quality Enhancement	Super Good, Very Good, Normal (Referral to Actual Video Effect Quality, Not for Preview)
Image Rotation	Normal, Vertical, Horizontal (for Recorded Video)
Recording Time	No Limit, 1min, 5min
Automatic Screen Off	OFF, 60S, 180S, 300S
Light Metering Mode	Center, Multi-point, Single Point
Video Recording File Time	No Limit, 1min, 5min
Loop Recording	OFF, ON
Recording Volume	0, 1, 2, 3
Video Time Watermark	OFF, Date, Date and Time

YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

System Settings

Automatic Shut Down	OFF, 1min, 3min, 5min, 10min, 15min
USB Auto Power On	Turn ON, Turn OFF
Languages	English, Simplified Chinese, Traditional Chinese (Select Language Through Configuration File in the Card)
Button Touch Tone	Turn ON, Turn OFF
Automatically Turn On WiFi	Turn ON, Turn OFF
WiFi Frequency Bands	2.4GHz or 5GHz (Dual Band Single Channel)
Display Brightness	Low, Medium, High Brightness (for Touch Screen)
Display Setting	Conventional Display, Full Screen Display (for Touch Screen)
Fill Light A (White Light)	Auto, OFF, ON (for Use with Fill Light Board)
Fill Light B (Infrared Light)	Auto, OFF, ON (for Use with Fill Light Board)
IR Cut Settings	Auto, OFF, ON (for Use with IR Cut Function Modules)
Special Effects	Original Image, Black and White, Natural, Negative, Warm Tones, Contrast (for Touch Screen)
White Balance	Auto, Sunny, Cloudy, Fluorescent, Incandescent
Date and Time	Year, Month, Day, Hour, Minute
Format	No, Yes
Reset	No, Yes
Card Information	Displays Video Card Capacity and Free Space
Device Information	Displays Firmware Version

Gimbal Functions and Settings

Gimbal Functions	Centering, Calibration
Sensitivity	Follow Softly, Follow Sensitively
Follow Mode	Full Follow, Heading Follow, Heading and Pitch Follow
Pitch Axis Control	Turn ON, Turn OFF

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YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

Camera Features

Continuous Shooting	Long Press the OK Button (B) to Shoot Continuously, Release Button to Stop Shooting Continuously
Snapshot	During Recording, Long Press the OK Button (B) to Capture the Video. Release Button to Stop Snapshot
HDMI Output Resolution	4K@30FPS 1080P@60FPS/30FPS 720P@60FPS
Video Start and Stop Function	Short Press the Power Button (A) to Pause or Continue Video Recording
USB Camera Resolution	H.264: 4K@30FPS, 1080P@120FPS, 720P@60FPS (Dependency on Sensor Type and UVC Protocol) MJPG: 5760x3240@10FPS, 4000x3000@10FPS 4K@30FPS, 1080P@30FPS, 720P@30FPS YUY2: 480P@30FPS (Supports Modification of UVC Output on Configurations)
USB Flash Drive	USB Mode when Connected to Computer
Inverted Mode	By Placing a Configuration File in the Card, You Can Modify the Displayed or Captured file and Flip it 180 degrees
WiFi Mode	AP Mode, STA Mode Set WiFi Mode by Putting Configuration Files in the Card or Enter the Menu to Set This Item Through the Touch Screen
Configuration IP Address	By Placing a Configuration File in the Card, You Can Modify the IP and Gateway Address of the Camera. Default is Static IP. Optional on Dynamic IP.
RTSP Video Stream Address	By Placing a Configuration File in the Card, You Can Modify the RTSP video stream address. If There is No Configuration File in the Card, the Default Port is 554.

YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

USB Type-C Interface:

This interface supports USB standard 5V power input, which can power the master board and charge the battery (recommended 7.4V-7.7V battery). Connecting to a computer can directly read files in the TF card and use it as a USB flash drive. It can also be used as a PCCAM USB camera.

The USB interface retains one camera control serial port UART3 and one camera debugging serial port UART1 (the serial port function can be used with the G1-USB serial port debugging board).

Connecting to the Computer USB Flash Drive Mode:

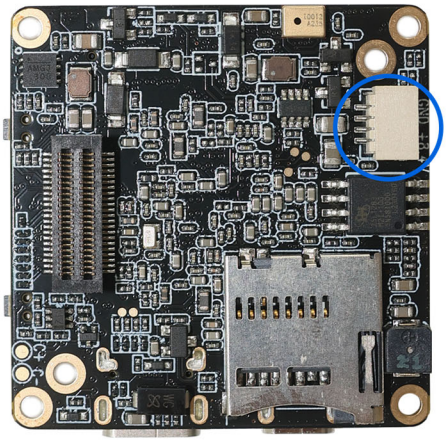
Insert the TF card, connect the other end of the USB to the computer, and automatically enter the USB flash drive mode after booting by default.

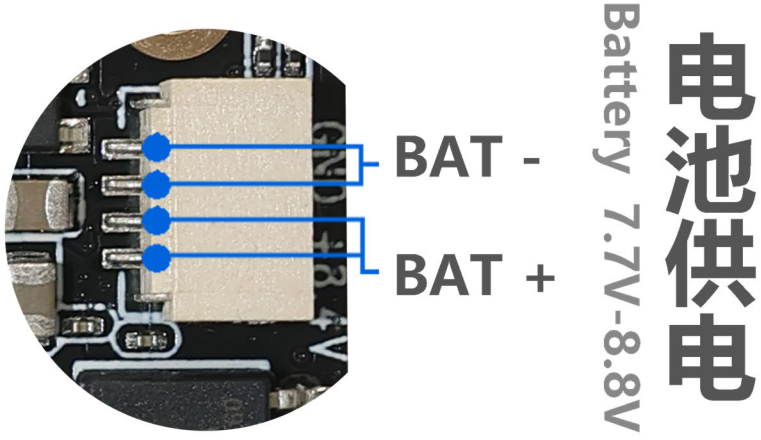
Connecting to the Computer PCCAM Mode:

Insert the TF card, connect the other end of the USB to the computer, and automatically enter the USB flash drive mode after booting. Short press the OK button (A) to switch to PCCAM camera mode. (Right-click the computer "Computer", click the left button in the pop-up prompt box to enter "Management", "Device Manager", and you can see the name of the camera identified in "Image Device" camera. Open the camera tool "amcap.exe" to see the current device preview screen).

Battery Power Supply:

6.6V (low power shutdown) to 8.8V, 7.4-7.7V high-voltage and high-density batteries are recommended Special note: the battery power supply can support up to 12V; but this does not include the gimbal version, the stable power supply voltage of the gimbal version is 8V.





YDS-G1M9 V6.2

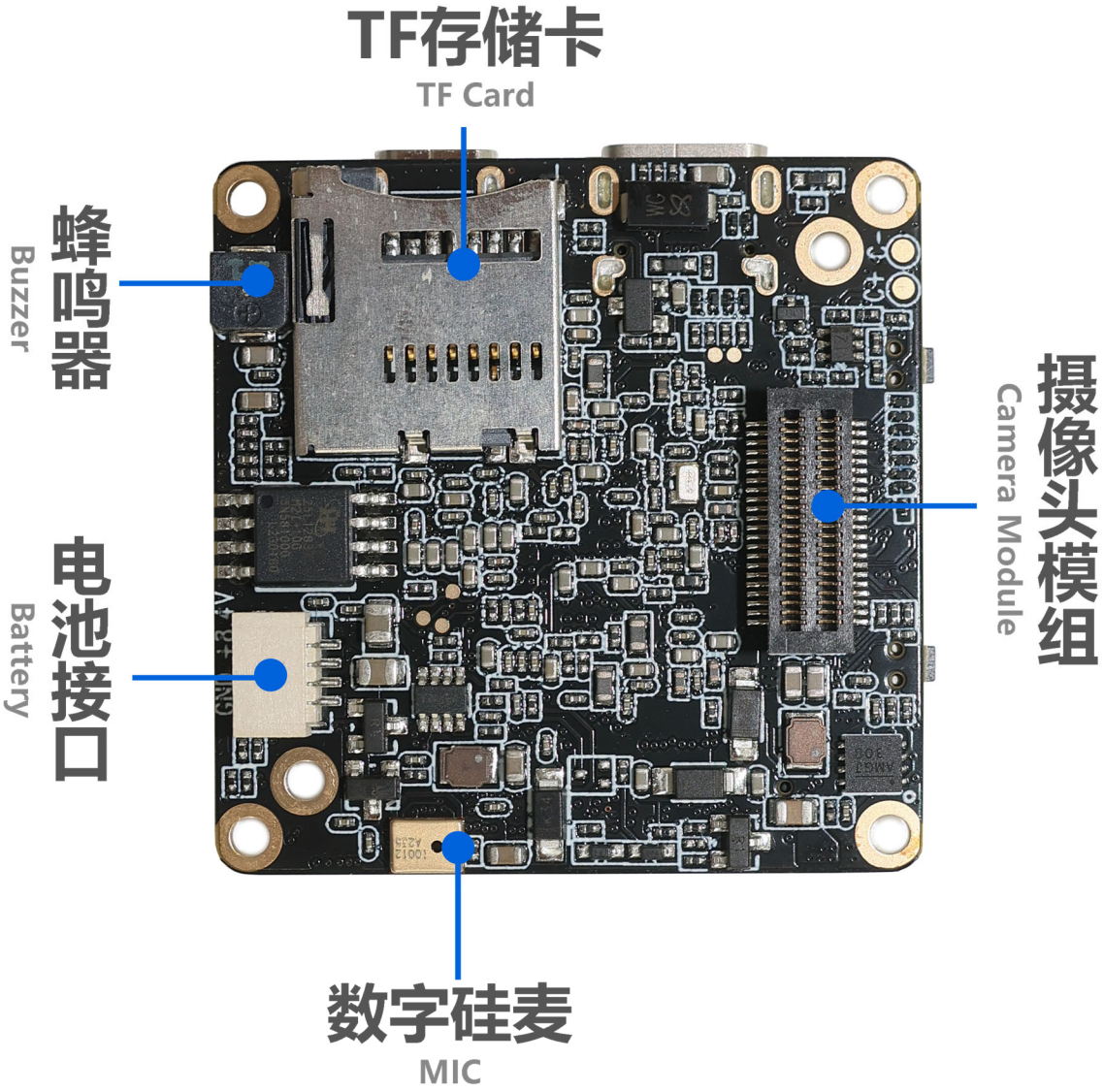
iCatch V39 Ai-Powered Image Processing SoC Master Board

Charge the Battery:

Use a power adapter (5V2A recommended) to charge the battery of the machine. The red light will be on during charging and the green light will be on when fully charged.

Camera Module:

This interface can be used to expand multiple MIPI sensors, IR-CUT function, LED fill light, serial port UART2, battery power output, micro three-axis gimbal and other functions.



YDS-G1M9 V6.2

iCatch V39 Ai-Powered Image Processing SoC Master Board

Button Instructions:

Button	Mode or Status	Functional Operation
Button A Power Mode	Power ON / OFF	Long Press 1 Second Power ON / OFF
	Standby	Short Press on Switch Mode Video Recording, Snapshot, Playback, Settings
	Setting Mode (with Touch Screen)	Short Press to Scroll Down Menu (After Pressing Button B to Enter Setting)
	Video Recording	Short Press to Pause or Continue Recording
Button B Confirmation OK Video Recording	Standby	In Video Standby Mode, Long Press 3 Seconds to Turn ON / OFF WiFi Mode. Default WiFi is OFF. In Video Recording Mode, Short Press to Start Recording In Snapshot Mode, Short Press to Start Taking Photo Long Press to Start Continue Shooting Release to Stop Continue Shooting
	Video Recording	Short Press to Stop Recording and Save the File Long Press 2 Seconds (Less than 4 Seconds) to Take a Single Frame Shot, Release to Stop Taking Frame Shots Long Press 5 Seconds to Take Continues Frame Shots, Release to Stop Taking Frame Shots
	Setting Mode (with Touch Screen)	Short Press to Confirm and Enter Setting Mode Long Press 2 Seconds to Return Double-Click to Switch Between Settings: Photo / Video / System / 3-Axis Gimbal
	Playback Mode (with Touch Screen)	Short Press to Scroll Up Menu Double-Click to Play / Pause Video or Audio Files Click 3 Times to Mark or Unmark Files. If File is Marked, then the File is Locked and Not Erasable Long Press to Prompt Option to Delete Current File (Long Press to Delete, Short Press to Return) After Entering, Long Press Again to Delete
	Shutdown	Press and Hold to Enter the USB Burning Mode
Reset Function	Standby or Working	Press Button A and B at the Same Time to Shutdown

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LED Indicator Description:

Functions	Color	Power On	Video Mode	Video Recording	Photo Mode	Photo Snapshot	Playback Mode	Setting Mode
LED Indicator	Red	Always On	Always On	Flashing			Always On	
	Green				Always On	Flash Once	Always On	
	Blue						Always On	Always On

Note: When the device is powered without a TF card inserted, the function indicator light flashes yellow.

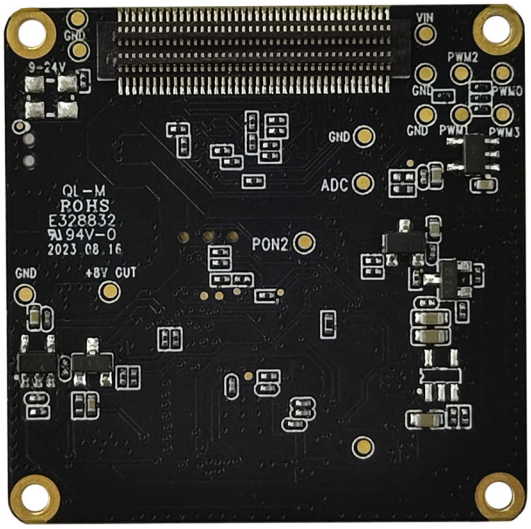
Buzzer Sound Description:

Operation Mode	Power On	Power Off	Switching Mode	Start Video Recording	Start Stop Recording	Photo Snapshot	Menu Setting	Menu Scroll Down	Exit Menu Setting
Buzzer Sound	3 Beeps	5 Beeps	1 Beep	1 Beep	2 Beeps	1 Beep	1 Beep	1 Beep	1 Beep

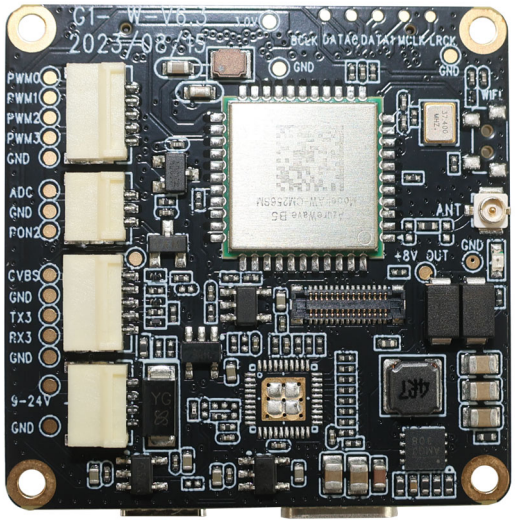
Special Note: When the touch screen is not in use, you can modify the setting parameters through the configuration file. Put the configuration file, such as "CameraConfig_G1A.ini" (the specific configuration file name will vary depending on the lens module) in the root directory of the TF card, and you can modify the corresponding function options in the configuration file. After saving the changes, shut down the machine and restart it to take effect.

YDS-G1WF V6.3

WiFi Expansion Board



Front View



Back View

Overview

WiFi expansion board is equipped with the AW CM256SM single-pass dual-band WiFi module, which supports the use of single-band 2.4GHz or 5GHz wireless WiFi functions. The board supports WiFi antenna, reserved WiFi button (Button C), serial port (UART3), etc.

PWM, ADC button, touch screen and other expansion interfaces included. The board PCB size is 38x38mm, and it must be used with our company's designated master board. This WiFi board can not work independently.

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YDS-G1WF V6.3

WiFi Expansion Board

Specifications

Model No.	YDS-G1WF V6.3
WiFi Module	AW CM256SM
Power Supply	Supports 3 Power Supply Methods At The Same Time (1) 5V USB to Type-C Port Power Supply (2) 9V-24V WiFi Board Power Supply (3) 6.8V-8.4V Battery Power Supply (The 3-Axis Gimbal Version Does Not Support 5V USB)
WiFi Frequency Bands	2.4GHz or 5GHz (Dual Band Single Channel)
Wireless Network Standards	IEEE 802.11B/G/N/AC, WiFi Compliant
2.4GHz Frequency Range	2.400GHz - 2.472GHz (2.4GHz ISM Band)
2.4GHz Channels	2.4GHz: Channel 1 - Channel 13
2.4GHz Transmission Rate	2 - 3 Megabytes
2.4GHz Transmission Distance	50 Meters (No Disruption)
5GHz Frequency Range	5.150GHz - 5.825GHz (5GHz ISM Band)
5GHz Channels	5GHz: Channel 1 - Channel 13
5GHz Transmission Rate	6 - 8 Megabytes
5GHz Transmission Distance	30 Meters (No Disruption)
CVBS (TV-Out)	720 x 576
CVBS Standards	NTSC / PAL (TV-Out)
Serial Port / UART	RX3, TX3, GND
ADC Button	Up, Down, Left, Right, OK 5-Way ADC Buttons Power Button
Operating Temperature	-10°C to +60°C Without Housing
Storage Temperature	-20°C to +80°C
Humidity	20% to 80%
PCB Dimensions	38 x 38 mm
PCB Screw Hole Spacing	34 mm
PCB Screw Hole Diameter	2 mm
Extendable Functions	PWM, ADC Buttons, WiFi Board Power Supply UART3 Serial Port, Touch Screen, Other Interfaces

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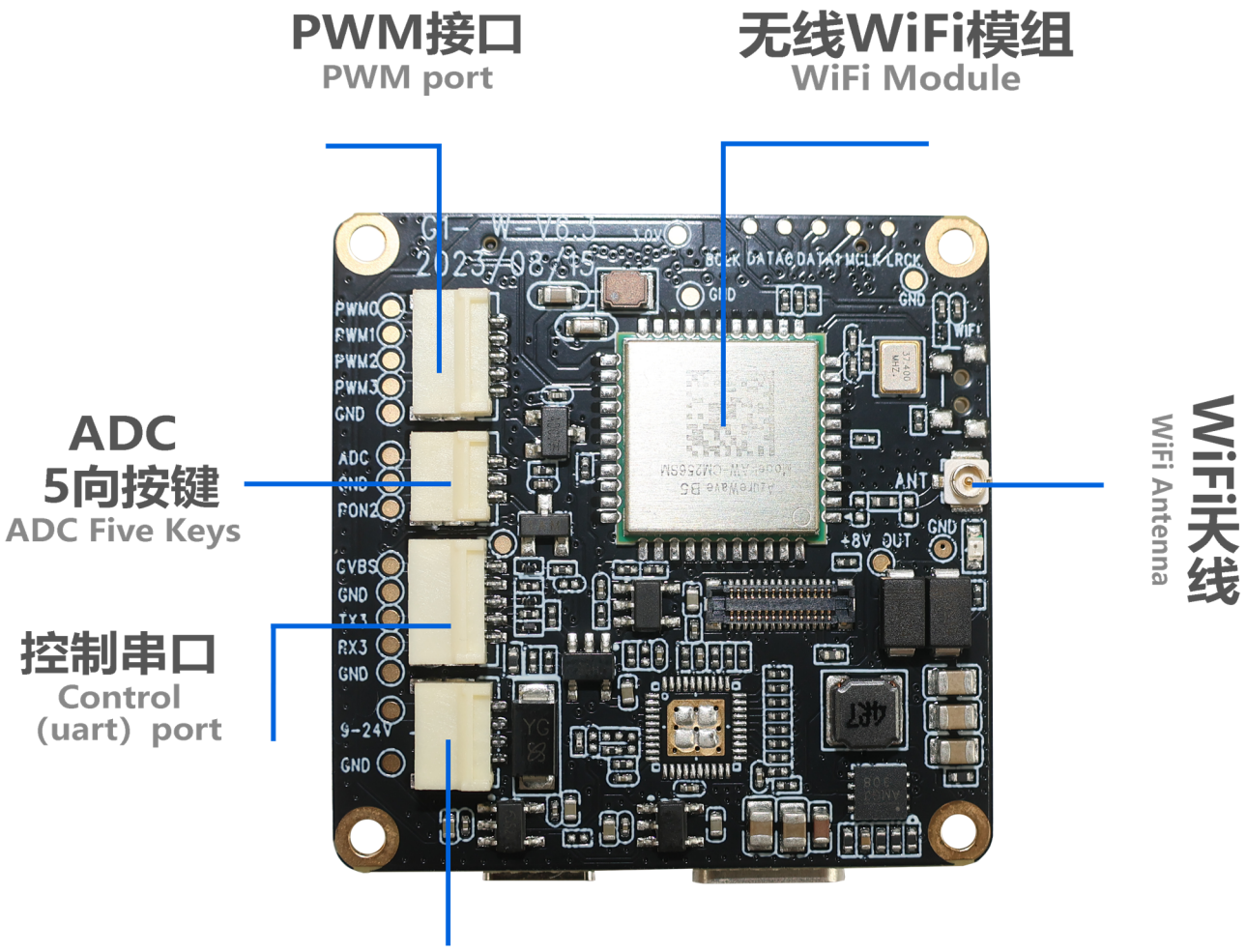
YDS-G1WF V6.3
WiFi Expansion Board

Hardware Interface Function Description

AW CM256SM single-pass dual-band WiFi module supports single-band 2.4GHz or 5GHz wireless WiFi function, and adopts the first generation IPEX universal copper standard antenna.

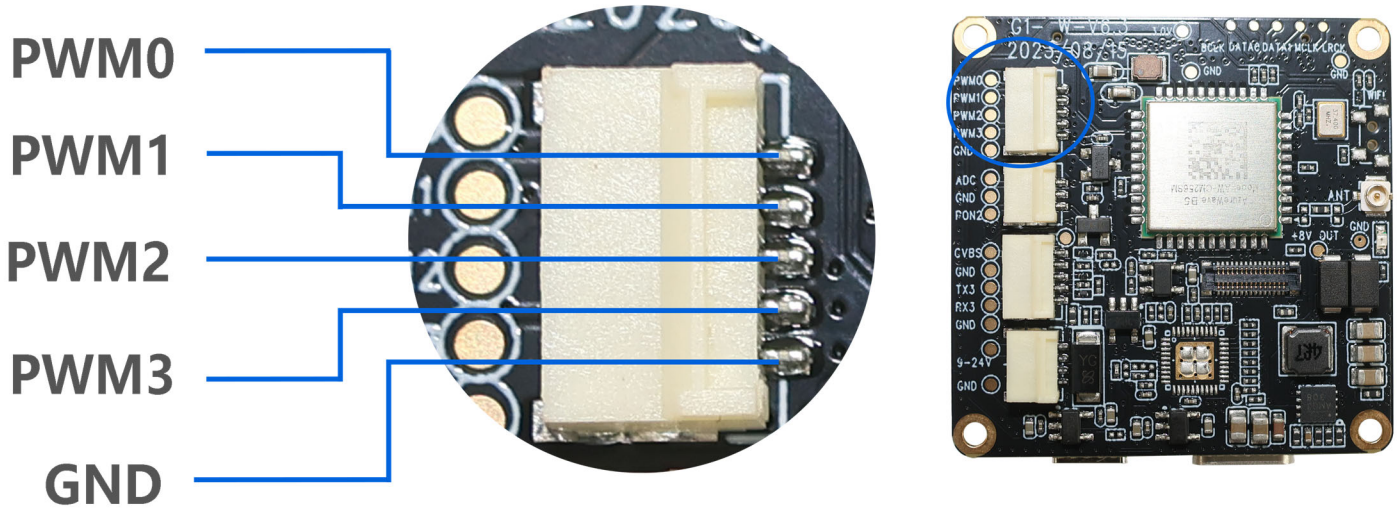
In the video mode standby state, long press the master board Button B, that is, long press the motherboard shooting button for 3S to turn on WiFi. The red light flashes when WiFi is turned on, and the red light is always on after the connection is successful.



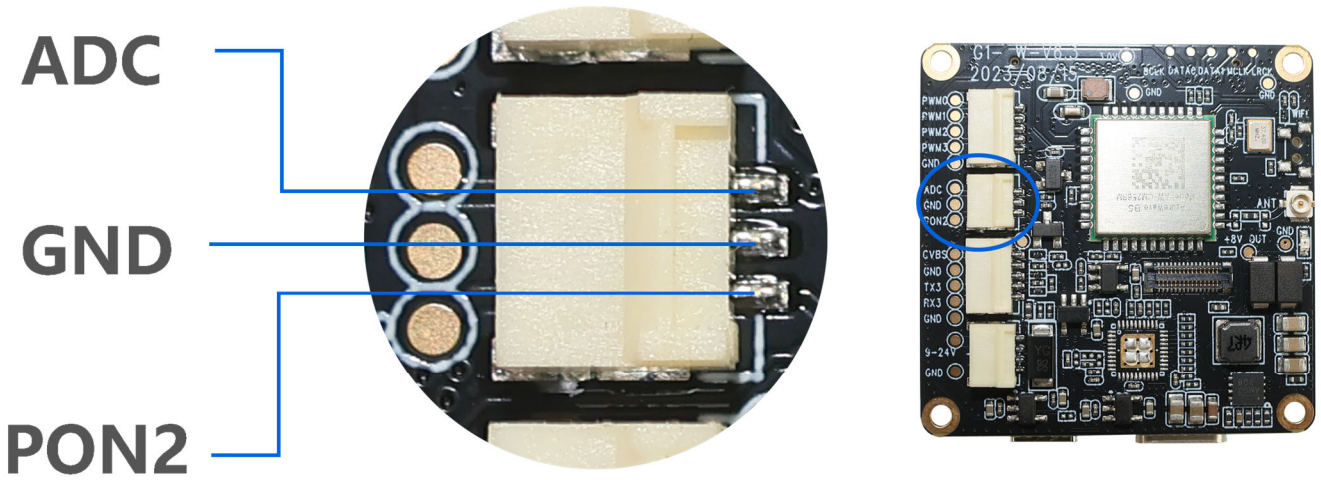
YDS-G1WF V6.3

WiFi Expansion Board

The PWM function interface, which can be used to control camera mode switching, photo taking, video recording and other functions.



Supports one ADC button interface, which can be connected to five buttons: up, down, left, right, and OK, to control the camera's recording, taking pictures, turning on WiFi, etc. Supports external buttons to control the camera's power on and off.



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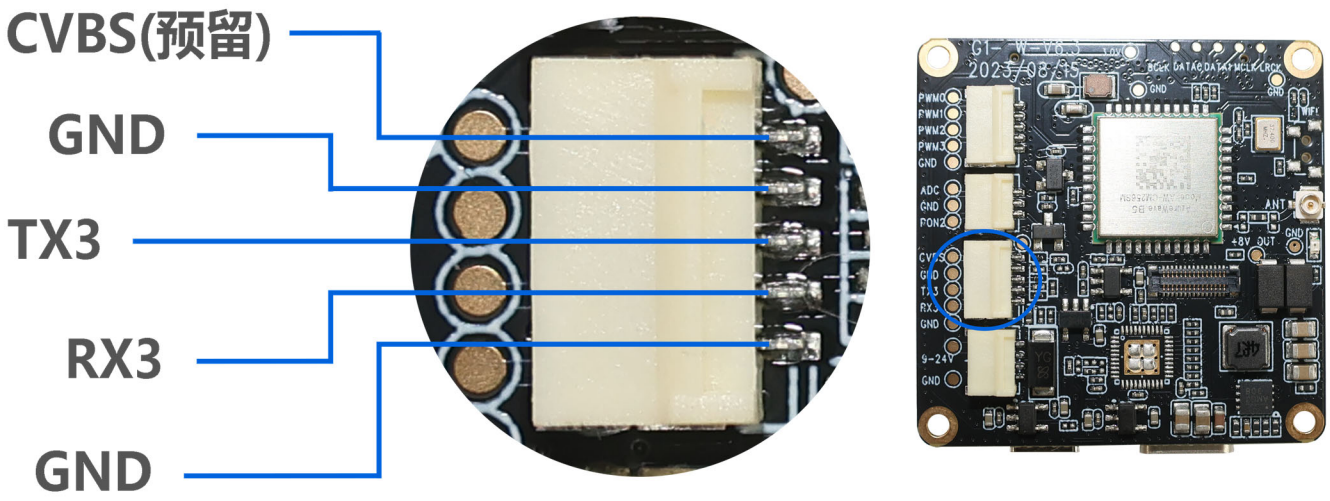
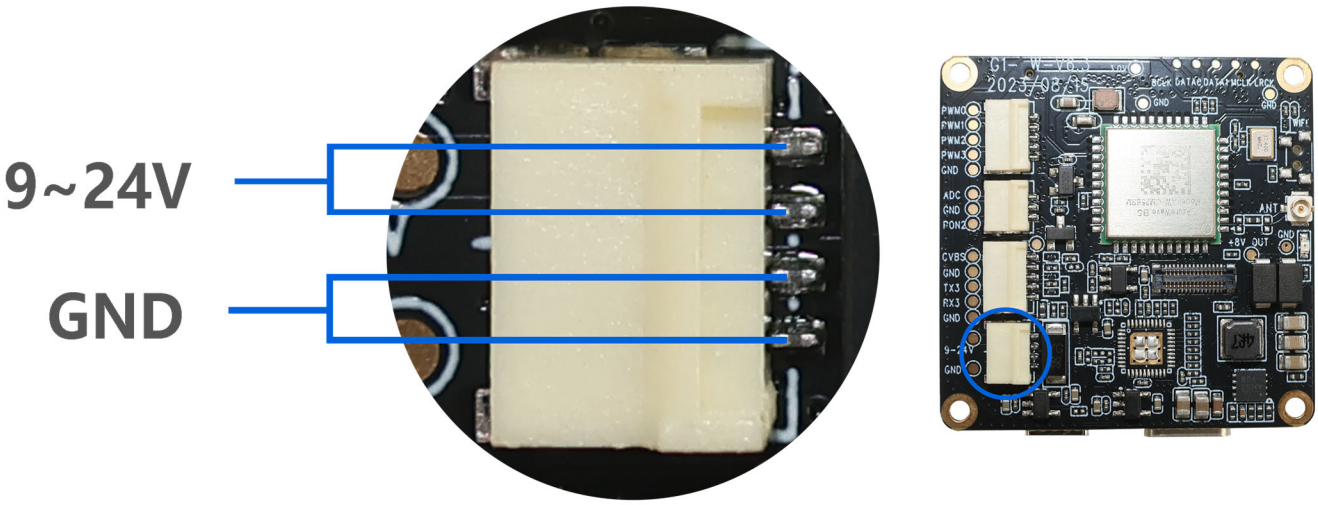
YDS-G1WF V6.3

WiFi Expansion Board

Supports one analog video CVBS (TV-OUT) signal output, with RX3 and TX3 reserved ports, and the camera can be set and controlled through this serial port.



The camera can be powered on automatically using 9V-24V power supply; the master board supports three-way simultaneous use, namely WiFi board power supply, motherboard battery power supply, and Type-C USB power supply. It can also be used with a single power supply.



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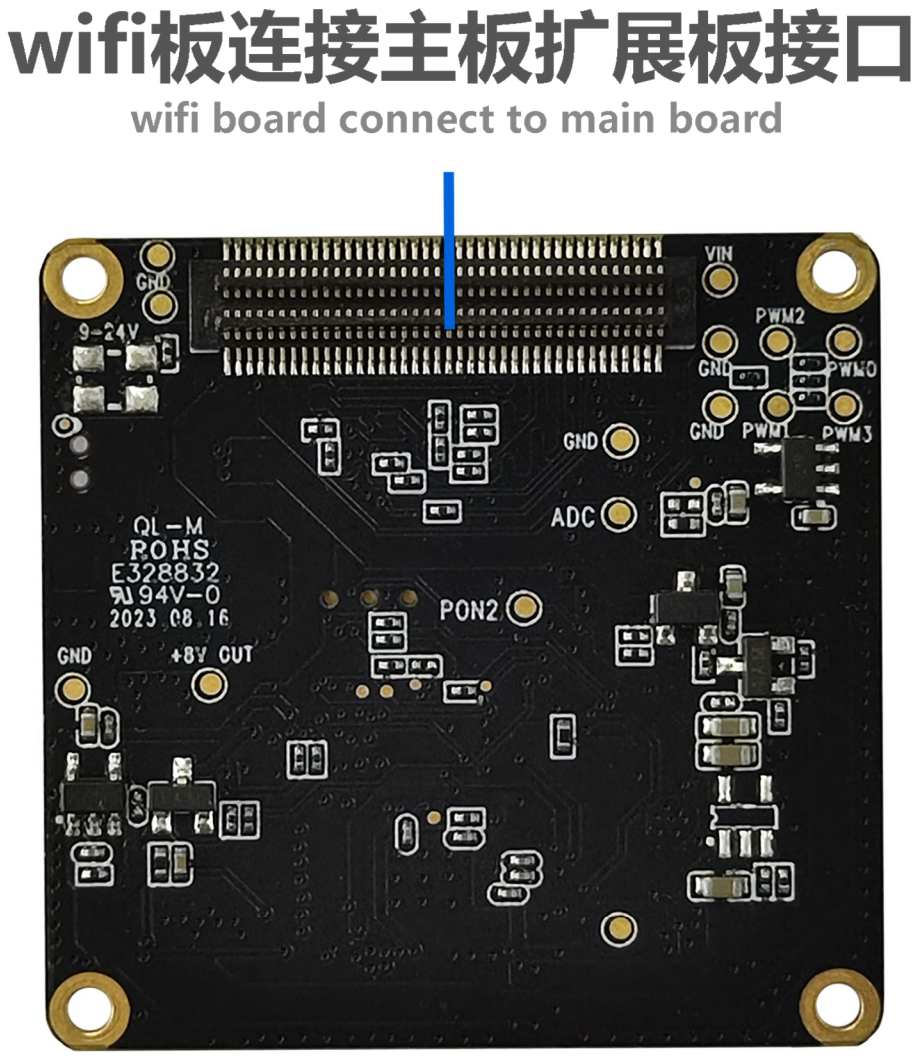
YDS-G1WF V6.3

WiFi Expansion Board

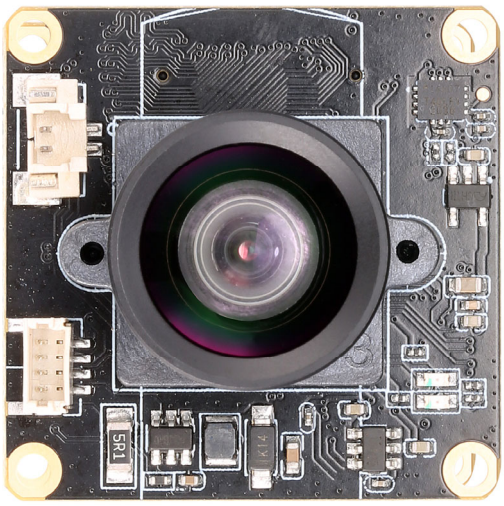
Special note:

The three-axis gimbal does not support 5V USB power supply alone. The battery power supply can support up to 12V; but this does not include the gimbal version, the stable power supply voltage of the battery for gimbal version is 8V.

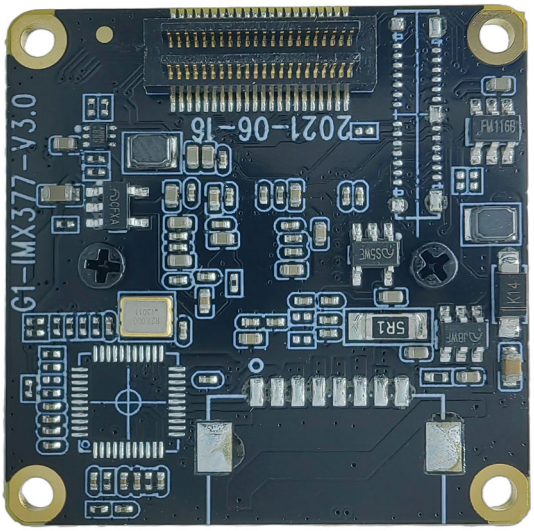


YDS-CMFL1812C6-IMX377 V3.0

12.35MP Sony IMX377 Fixed Focus Camera Module



Front View



Back View

Overview

The YDS-CMFL1812C6-IMX377 V3.0 wide-angle distortion-free camera module uses the Sony IMX377 high-quality CMOS sensor, which has a diagonal of 7.81mm (1/2.3 type) CMOS image sensor, a pixel of 1.55um, a color square pixel display, an effective pixel of 12.35 megapixels, and a high-definition image.

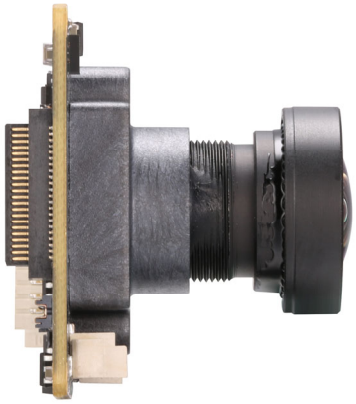
When used with the master board, it can support 12MP high-definition photography, and can support up to 4K@60FPS (differential), 4K@30FPS video shooting. It can use high-definition coaxial cable to connect to the master board, which is convenient for various installation scenarios.

It can also be connected using a board-to-board socket. It supports multi-axis EIS anti-shake image stabilization function. The board frame size is 32x32mm, and the size from the top of the module lens to the PCB board surface is 23mm.

YDS-CMFL1812C6-IMX377 V3.0

12.35MP Sony IMX377 Fixed Focus Camera Module

Top View



Side View

Bottom View

Isometric View

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YDS-CMFL1812C6-IMX377 V3.0

12.35MP Sony IMX377 Fixed Focus Camera Module

Specifications

Model No.	**YDS-CMFL1812C6-IMX377 V3.0**
Image Sensor	IMX377
Image Sensor Type	CMOS
Effective Pixels	12.35 Megapixels
Sensor Size	1/2.3"
Pixel Size	1.55 um x 1.55 um
Video Frame Rate	4K@24/25/30/FPS, 4K@48/50/60FPS (Differential) 2.7K@24/25/30/48/50/60FPS 1440@24/25/30/48/50/60FPS 1080P@24/25/30/48/50/60/120FPS 720P@24/25/30/48/50/60/120/240FPS
Video Slow Motion	OFF, 4K2X, 1080P4X, 720P8X
Photo Resolution (with Master Board)	20MP (5200x3900) (Differential) 13MP (4160x3120) (Differential) 12MP (4000x3000) 10MP (3648x2736) 8MP (3264x2448) 5MP (2592x1944) 3MP (2048x1536) 2MP (1920x1080)
Operating Temperature	-10°C to +60°C
Storage Temperature	-20°C to +80°C
Humidity	20% to 80%
PCB Dimensions	32 x 32 mm
Module Size	32 x 32 x 24.7 mm
PCB Screw Hole Spacing	28 x 28 mm
PCB Screw Hole Diameter	2 mm
Lens Mount Screw Diameter	1.6 mm

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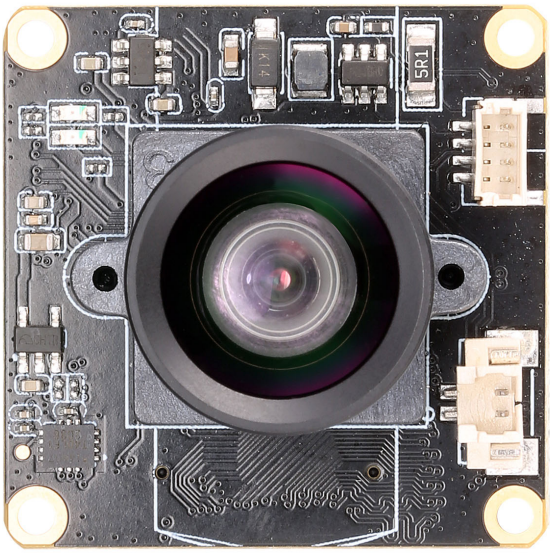
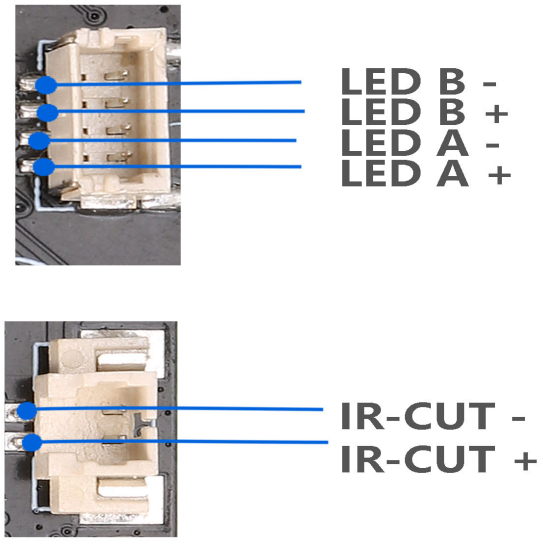
YDS-CMFL1812C6-IMX377 V3.0

12.35MP Sony IMX377 Fixed Focus Camera Module

Lens Specifications

Lens Model No.	1812C6
EFL (Focal Length)	3.24 mm
TTL (Total Length)	22.5 mm
F. No.	2.70
Lens Construction	4G2P + IR
Diagonal View Angle (DFOV)	100° (DFOV)
Horizonal View Angle (HFOV)	87° (HFOV)
Vertical View Angle (VFOV)	71° (VFOV)
Chief-Ray Angle	<14.9°
Distortion	<0.5%
Relative Illumination	>65%
Lens Operating Temperature	-40°C to +85°C
Lens Storage Temperature	-40°C to +95°C





The two sets of fill light interfaces support the expansion of infrared light and white light boards to provide fill light for the device. If you need the fill light function, you need to add the YDS-LEDP V2.0 White and Infrared Light LED Plate.

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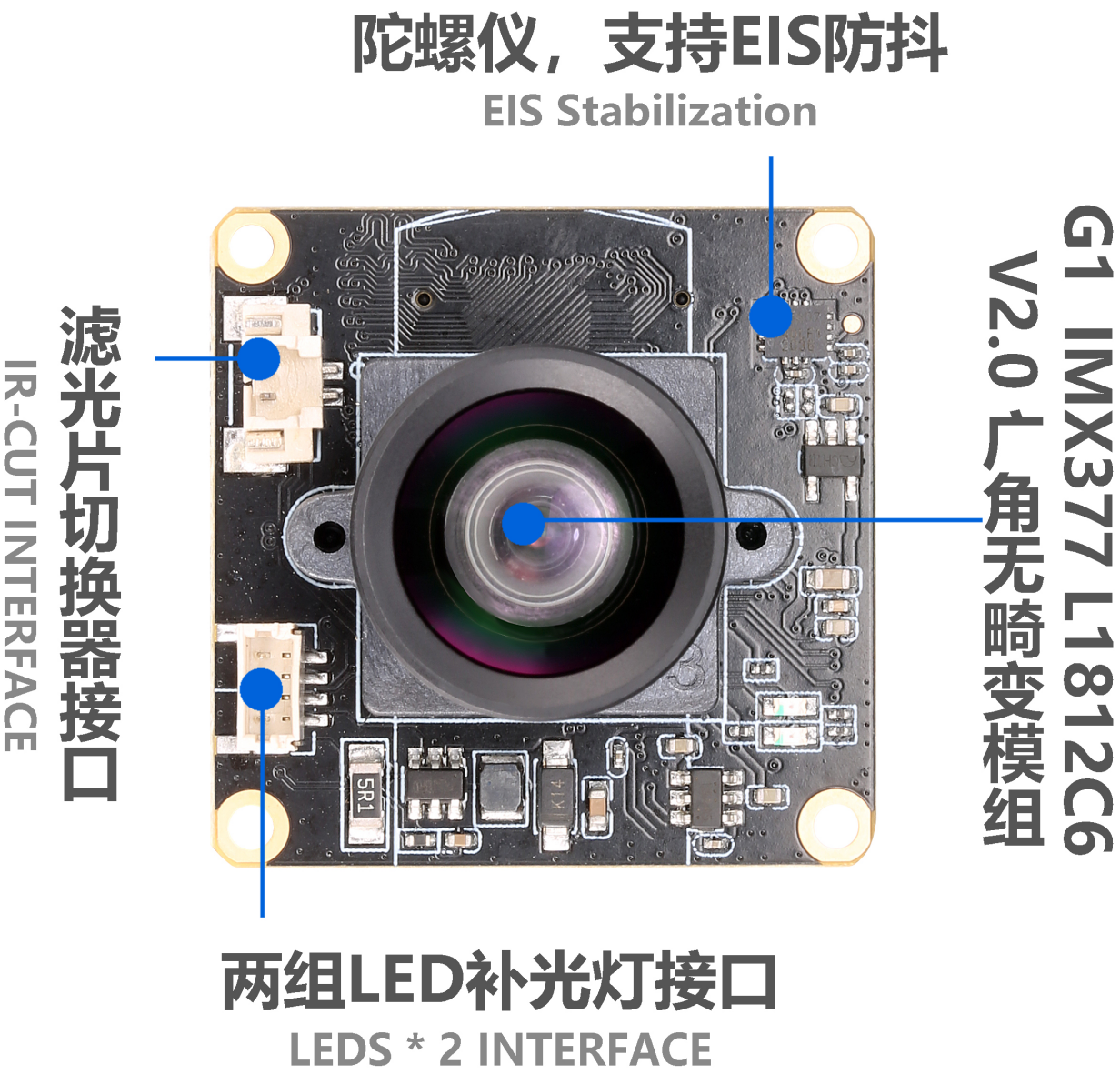


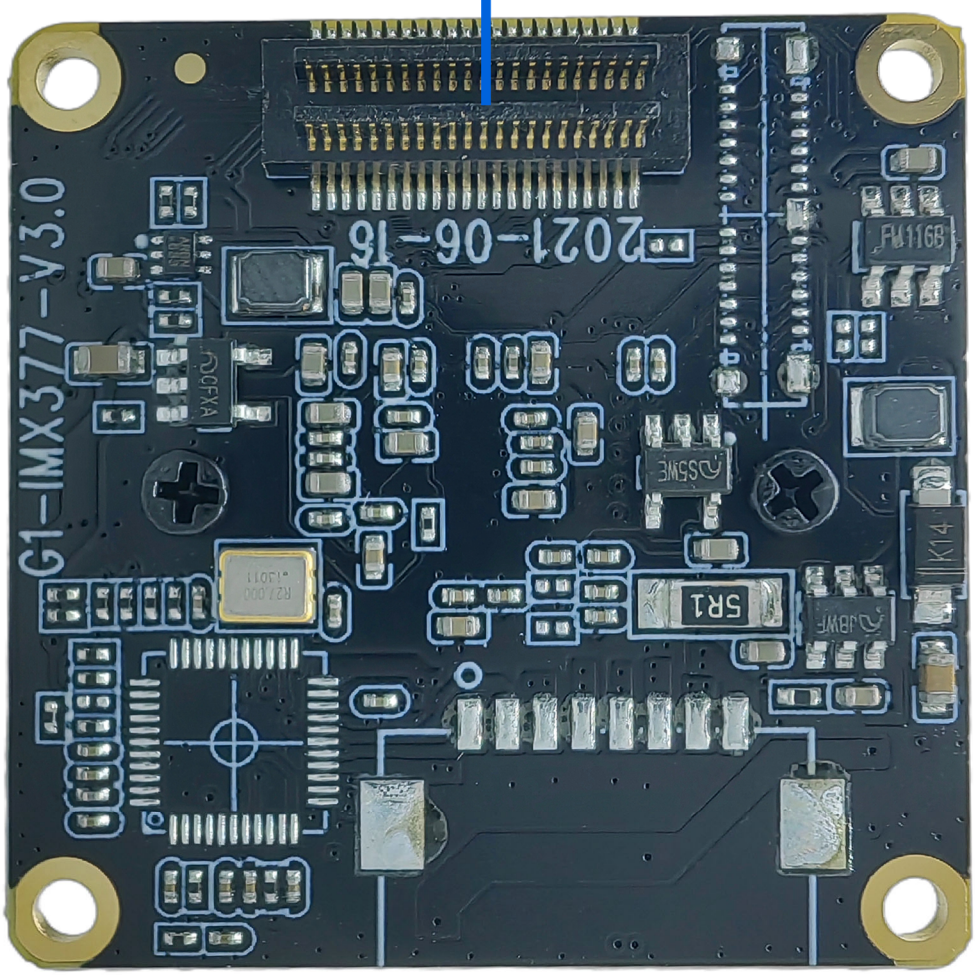
Special Note:
The IR-Cut filter switch interface is used by lenses with filters, but this camera module does not support this function.

YDS-CMFL1812C6-IMX377 V3.0

12.35MP Sony IMX377 Fixed Focus Camera Module

通过板对板连接器连接G1主板
支持Sensor、IR-CUT、LED等

Connect Sensor、IR-CUT、LED etc.



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SONY

[Product Information]

Ver.1.0

IMX377CQT

Diagonal 7.81 mm (Type 1/2.3) CMOS Image Sensor with Square Pixel for Color Cameras

Description

The IMX377CQT is a diagonal 7.81 mm (Type 1/2.3) CMOS image sensor with a color square pixel array and approximately 12.35 M effective pixels. 12-bit digital output makes it possible to output the signals of approximately 12.35 M effective pixels with high definition for shooting still pictures. It also operates with three power supply voltages : analog 2.8 V, digital 1.2 V, and 1.8 V for I/O interface and achieves low power consumption. Furthermore, it realizes 12-bit digital output for shooting high-speed and high-definition moving pictures by horizontal and vertical addition and subsampling. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable integration time.
In addition, this product is designed for use in consumer use digital still camera and consumer use camcorder. When using this for another application, Sony Semiconductor Solutions Corporation does not guarantee the quality and reliability of product. Therefore, don't use this for applications other than consumer use digital still camera and consumer use camcorder.
In addition, individual specification change cannot be supported because this is a standard product.
Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

Features

- ◆CMOS active pixel type pixels
- ◆Input clock frequency 6 to 27 MHz
- ◆MIPI Specifications (CSI-2 high-speed serial interface)
- ◆All-pixel scan mode
  Various readout modes (*)
- ◆High-sensitivity, low dark current, no smear, excellent anti-blooming characteristics
- ◆Vertical and horizontal arbitrary cropping function
- ◆Variable-speed shutter function (minimum unit: 1 horizontal period)
- ◆Low power consumption
- ◆H driver, V driver and I^2C communication circuit on chip
- ◆CDS/PGA on chip: Gain +27 dB (step pitch 0.1 dB)
- ◆10-bit/12-bit A/D conversion on chip
- ◆R, G, B primary color mosaic filters on chip
- ◆All-pixel simultaneous reset supported
- ◆98-pin high-precision ceramic package

* Please refer to the datasheet for binning/subsampling details of readout modes.

Device Structure

◆CMOS image sensor

◆Image size	Diagonal 7.81 mm (Type 1/2.3)
◆Total number of pixels	4152 (H) × 3062 (V) approx. 12.71 M pixels
◆Number of effective pixels	
- Type 1/2.3 approx. 12.35 M pixels use	4056 (H) × 3046 (V) approx. 12.35 M pixels
- Type 1/2.5 approx. 9.03 M pixels use	4152 (H) × 2174 (V) approx. 9.03 M pixels
◆Number of active pixels	
- Type 1/2.3 approx. 12.35 M pixels use	4024 (H) × 3036 (V) approx. 12.22 M pixels diagonal 7.81 mm
- Type 1/2.5 approx. 9.03 M pixels use	4120 (H) × 2168 (V) approx. 8.93 M pixels diagonal 7.22 mm
◆Number of recommended recording pixels	
- Type 1/2.3 approx. 12.35 M pixels use	4000 (H) × 3000 (V) 12.00 M pixels aspect ratio 4:3
- Type 1/2.5 approx. 9.03 M pixels use	4096 (H) × 2160 (V) approx. 8.85 M pixels aspect ratio approx. 17:9
◆Chip size	10.200 mm (H) × 8.000 mm (V) (include scribe area)
◆Unit cell size	1.55 µm (H) × 1.55 µm (V)
◆Optical black	Horizontal (H) direction : Front 0 pixel, rear 0 pixel
	Vertical (V) direction : Front 16 pixels, rear 0 pixel
◆Package	98 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

Item		Value	Remarks
Sensitivity (F5.6)	Typ.	976 digit	1/30 s integration
Saturation signal	Min.	2799 digit	

Basic Drive Mode

Type 1/2.3 Approx. 12.35 M Pixels (4:3)

Drive mode	Number of recording pixels	Max frame rate [frame/s]	Output data bit length [bit]
Readout mode 0	4000 (H) × 3000 (V) 12.00 M pixels	34.97	12
Readout mode 1	4000 (H) × 3000 (V) 12.00 M pixels	39.96	10
Readout mode 1A	4000 (H) × 3000 (V) 12.00 M pixels	29.97	10
Readout mode 2	2000 (H) × 1500 (V) 3.00 M pixels	59.94	12
Readout mode 3	1332 (H) × 998 (V) approx. 1.33 M pixels	59.94	12
Readout mode 4	1332 (H) × 1000 (V) approx. 1.33 M pixels	239.76	12
Readout mode 5	2000 (H) × 750 (V) 1.50 M pixels	239.76	10
Readout mode 6	1332 (H) × 332 (V) approx. 0.44 M pixels	299.70	12
Readout mode 7	1332 (H) × 332 (V) approx. 0.44 M pixels	29.97	12
Readout mode 8	1332 (H) × 174 (V) approx. 0.23 M pixels	659.34	12

Type 1/2.5 Approx. 9.03 M Pixels (Approx. 17:9)

Drive mode	Number of recording pixels	Max frame rate [frame/s]	Output data bit length [bit]
Readout mode 0	4096 (H) × 2160 (V) approx. 8.85 M pixels	29.97	12
Readout mode 1	3840 (H) × 2160 (V) approx. 8.29 M pixels	59.94	10
Readout mode 1A	3840 (H) × 2160 (V) approx. 8.29 M pixels	59.94	10
Readout mode 2	2048 (H) × 1080 (V) approx. 2.21 M pixels	119.88	12
Readout mode 2A	2048 (H) × 1080 (V) approx. 2.21 M pixels	119.88	12
Readout mode 3	1364 (H) × 720 (V) approx. 0.98 M pixels	119.88	12
Readout mode 4	1364 (H) × 720 (V) approx. 0.98 M pixels	299.70	12
Readout mode 6	1364 (H) × 240 (V) approx. 0.33 M pixels	419.58	12
Readout mode 8	1364 (H) × 124 (V) approx. 0.17 M pixels	839.16	12

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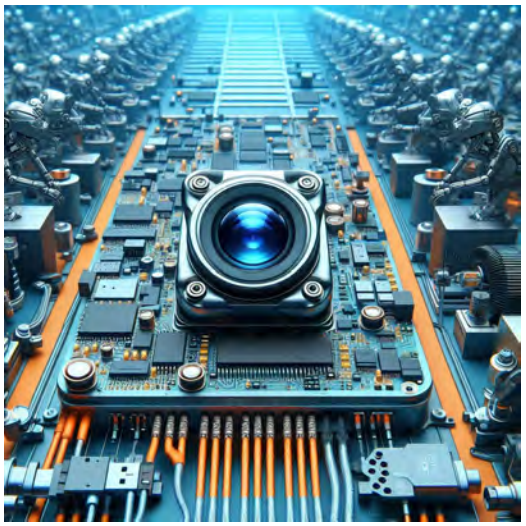
Cameras Applications

Automotive Driver Pilot

Live Streaming

Video Conference

Eye Tracker Biometric Detection



Machine Vision

Agricultural Monitor

Night Vision Security

Drone and Sports Eagle Eyes

Interactive Pet Camera

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Camera Module Pinout Definition Reference Chart

OmniVision Sony Samsung On-Semi Aptina Himax GalaxyCore PixArt SmartSens Sensors	
Pin Signal	**Description**
DGND GND	ground for digital circuit
AGND	ground for analog circuit
PCLK DCK	DVP PCLK output
XCLR PWDN XSHUTDOWN STANDBY	power down active high with internal pull-down resistor
MCLK XVCLK XCLK INCK	system input clock
RESET RST	reset active low with internal pull-up resistor
NC NULL	no connect
SDA SIO_D SIOD	SCCB data
SCL SIO_C SIOC	SCCB input clock
VSYNC XVS FSYNC	DVP VSYNC output
HREF XHS	DVP HREF output
DOVDD	power for I/O circuit
AFVDD	power for VCM circuit
AVDD	power for analog circuit
DVDD	power for digital circuit
STROBE FSTROBE	strobe output
FSIN	synchronize the VSYNC signal from the other sensor
SID	SCCB last bit ID input
ILPWM	mechanical shutter output indicator
FREX	frame exposure / mechanical shutter
GPIO	general purpose inputs
SLASEL	I2C slave address select
AFEN	CEN chip enable active high on VCM driver IC
MIPI Interface	
MDN0 DN0 MD0N DATA_N DMO1N	MIPI 1st data lane negative output
MDP0 DP0 MD0P DATA_P DMO1P	MIPI 1st data lane positive output
MDN1 DN1 MD1N DATA2_N DMO2N	MIPI 2nd data lane negative output
MDP1 DP1 MD1P DATA2_P DMO2P	MIPI 2nd data lane positive output
MDN2 DN2 MD2N DATA3_N DMO3N	MIPI 3rd data lane negative output
MDP2 DP2 MD2P DATA3_P DMO3P	MIPI 3rd data lane positive output
MDN3 DN3 MD3N DATA4_N DMO4N	MIPI 4th data lane negative output
MDP3 DP3 MD3P DATA4_P DMO4P	MIPI 4th data lane positive output
MCN CLKN CLK_N DCKN	MIPI clock negative output
MCP CLKP MCP CLK_P DCKN	MIPI clock positive output
DVP Parallel Interface	
D0 DO0 Y0	DVP data output port 0
D1 DO1 Y1	DVP data output port 1
D2 DO2 Y2	DVP data output port 2
D3 DO3 Y3	DVP data output port 3
D4 DO4 Y4	DVP data output port 4
D5 DO5 Y5	DVP data output port 5
D6 DO6 Y6	DVP data output port 6
D7 DO7 Y7	DVP data output port 7
D8 DO8 Y8	DVP data output port 8
D9 DO9 Y9	DVP data output port 9
D10 DO10 Y10	DVP data output port 10
D11 DO11 Y11	DVP data output port 11

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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




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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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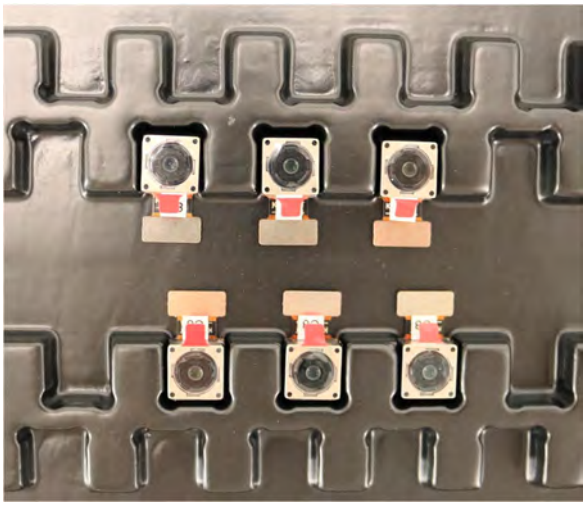
YDS Camera Module

Complete with Lens Protection Film

Tray with Grid and Space

Place Cameras on the Tray



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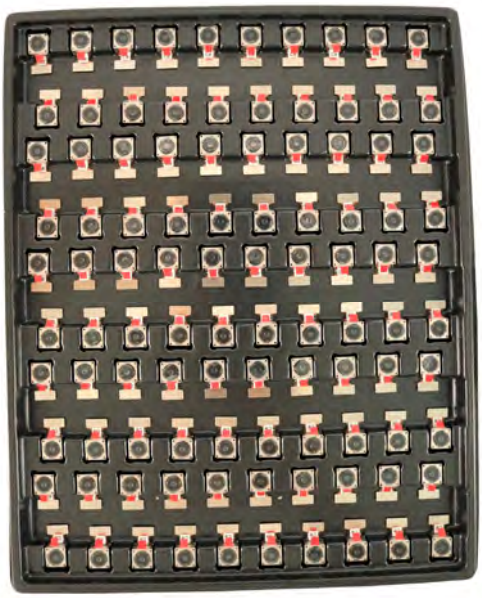
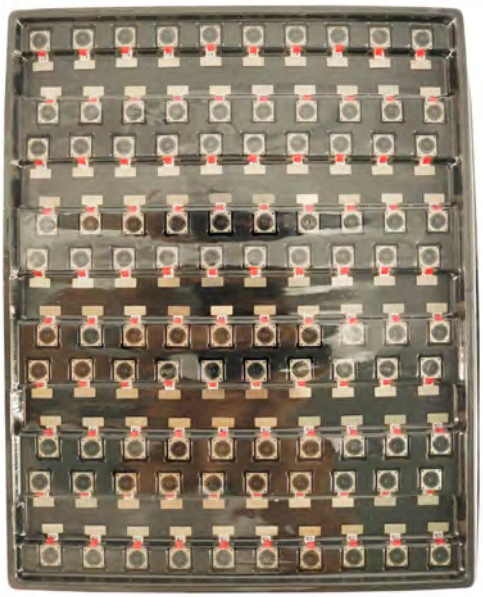
Full Tray of Cameras



Cover Tray with Lid



Place Tray into Anti-Static Bag

Vacuum the Anti-Static Bag

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Sealed Vacuum Anti-Static Bag with Labels

1. Model and Description 2. Quantity 3. Manufacturing Date Code 4. Caution

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Place Foam Sheets Between Tray Bags

Foam Sheets are Larger Than Trays

Place Foam Sheets and Trays into Box

Foam Sheets are Tightly Fitting in Box

Seal the Carbon Box

Label the Carbon Shipping Box

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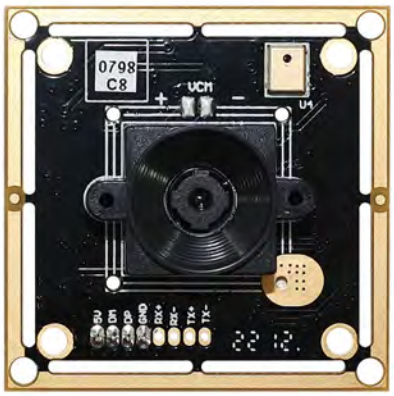
USB Camera Module



Complete with Lens Protection Film

Place Camera Sample into Anti-Static Bag

Place USB Cameras into Tray

Seal the Tray with Anti-Static Bag

Label the Carbon Shipping Box

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Place Camera Sample into Anti-Static Bag

Place Connectors into Anti-Static Bag

Label the Sample Bags

Place Connectors into Reel

Place Samples into the Carbon Box

Place Connectors into the Carbon Box

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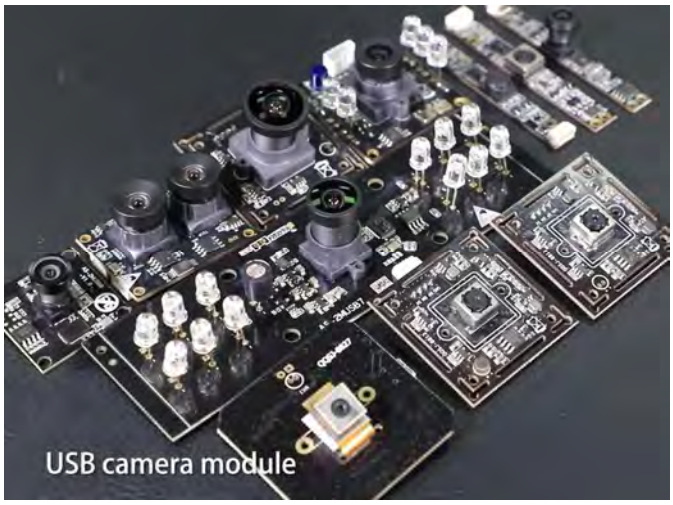
Company YDSCAM

YingDeShun Co. Ltd. (YDS) was established in 2017, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. YDS is occupying 20,000 square feet automated plants with 100 employees of annual throughput 30,000,000 units cameras.

YDS 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. YDS 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

YDS provides the following limited warranty if you purchased the Product(s) directly from YDS company or from YDS's website www.YDSCAM.com. Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. YDS 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, YDS 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 YDS is solely limited to repair and/or replacement on the terms set forth above. YDS is not reliable or responsible for any subsequential events.

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YDS Strength

Powerful Factory

Professional Service

Promised Delivery

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