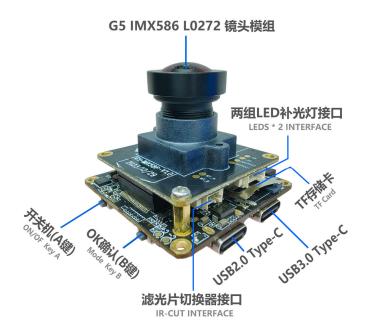


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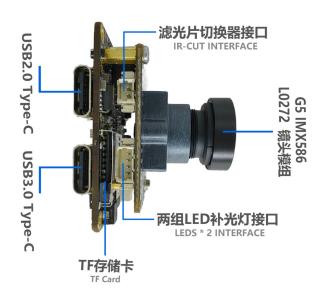
YDS-G5M7V2+YDS-CMFL0272-IMX586 V1.0

Ai Master Board + 48MP Sony IMX586 Fixed Focus **Camera Module Development Kit**











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YDS-G5M7V2+YDS-CMFL0272-IMX586 V1.0

Ai Master Board + 48MP Sony IMX586 Fixed Focus **Camera Module Development Kit**







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YDS-G5M7 V2.0 iCatch V57 Ai-Powered Image Processing SoC Master Board





Front View Back View

Overview

Equipped with iCatch V57, built-in 2GB DDR3, supports up to 4K@30FPS, 1080P@120FPS H.264 encoded video. Onboard support for Type-C, TF memory card, video recording, 2 control buttons, buzzer, battery power supply, etc.

This master board extension also supports WiFi, display, CVBS, lens camera 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-G5M7 V2.0

iCatch V57 Ai-Powered Image Processing SoC Master Board

Hardware Specifications

Model No.	YDS-G5M7 V2.0		
Main Control Chipset (DSP)	iCatch V57		
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 Type-C 2.0 Interface, Type-C 3.0 Interface		
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 Power Supply (3) 6.8V-8.4V Battery Power Supply		
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-G5M7 V2.0 + Camera (2) YDS-G5M7 V2.0 + Camera + YDS-G1WF V6.3 WiFi Board		
Supportive Image Sensors	48MP: IMX586 12MP: IMX577		
Optional Extension Ports	WiFi, Camera Module, UART, I2C, SPI, IO etc.		



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YDS-G5M7 V2.0

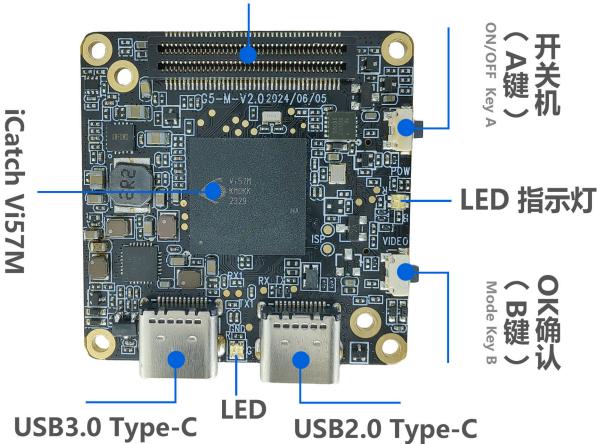
iCatch V57 Ai-Powered Image Processing SoC Master Board

Photo and Video Resolution

Video Resolution	4K@24/25/30/FPS 2.7K@24/25/30/48/50/60FPS 1080P@24/25/30/48/50/60/120FPS 720P@24/25/30/48/50/60/120/240FPS	
Photo Resolution	48MP (8000x6000) 14MP (4592x3056) 12MP (4000x3000) 10MP (3648x2736) 8MP (3264x2448) 5MP (2592x1944) 3MP (2048x1536) 2MP (1920x1080)	

Wifi、显示屏、uart、PWM等扩展接口

For Wifi, Display, uart, PWM Etc





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YDS-G5M7 V2.0

iCatch V57 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.

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:

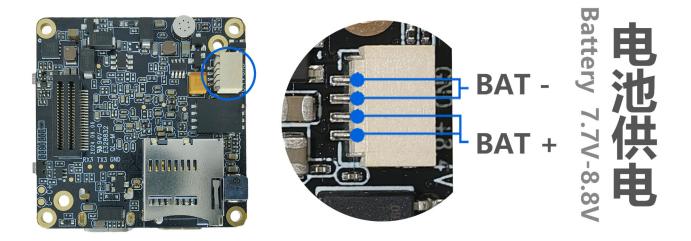
Insert the TF card, connect the other end of the USB to the computer, and automatically enter the USB flash drive mode after booting. Short press the OK button (A) to switch to PCCAM camera mode. (Right-click the computer "Computer", click the left button in the pop-up prompt box to enter "Management", "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).

Type-C USB 2.0 and USB 3.0 Interfaces:

USB 2.0 Type-C interface: retains the camera control serial port UART3 and the camera debugging serial port UART1 (the serial port function can be used with the USB serial port debugging board). USB 3.0 Type-C interface: connected to a computer with a USB 3.0 port, it can achieve high-speed data transmission function, greatly shortening the data transmission time.

Battery Power Supply:

6.6V (low power shutdown) to 8.8V, 7.4-7.7V high-voltage and high-density batteries are recommended.





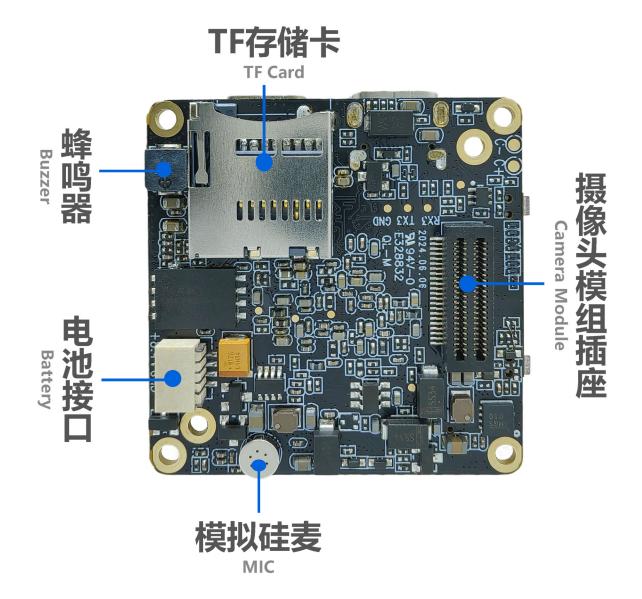
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YDS-G5M7 V2.0 iCatch V57 Ai-Powered Image Processing SoC Master Board

Camera Module:

This interface can be used to expand multiple MIPI sensors, IR-CUT functions, LED filled light, UART2 serial port, battery power output, and other functions.

Some camera modules can be used with coaxial cable extended connection via the YDS-G1CA V1.0 adapter plate, which is convenient for users to assemble flexibly.





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YDS-G5M7 V2.0

iCatch V57 Ai-Powered Image Processing SoC Master Board

LED Indicator Description:

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

Special Note:

When the device is powered on 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
Buzzer Sound	3 Beeps	5 Beeps	1 Beep	1 Beep	2 Beeps	1 Beep

Special Note:

In each mode, when the device presses a button, you hear the buzzer "beep" sound.

Button Instructions:

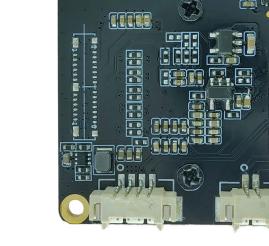
Button	Mode or Status	Functional Operation
Button A	Power ON / OFF	Long Press 1 Second Power ON / OFF
Power Standby	Standby	Short Press on Switch Mode Video Recording, Snapshot
Button B Confirmation OK	Standby	In Video Standby Mode, Long Press 3 Seconds to Turn ON / OFF WiFi Mode. Default WiFi is OFF. In Video Recording Mode, Short Press to Start Recording In Snapshot Mode, Short Press to Start Taking Photo
Video Recording	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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YDS-CMFL0272-IMX586 V1.0 48MP Sony IMX586 Fixed Focus Camera Module





94V-0 2024.01.02

QL-M E328832

Front View

Back View

Overview

The YDS-CMFL0272-IMX586 V1.0 camera module uses the Sony IMX586 high-quality CMOS sensor, which has a diagonal of 8.0mm (Type 1/2.0) CMOS image sensor, 0.8x0.8um pixel, color square pixel display, 48 effective megapixels, and high-definition images.

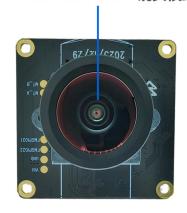
When used with the master board, it can support 48MP pixel high-definition photography and up to 4K@30FPS video recording, with the characteristics of true color reproduction and excellent image quality. It is connected using a board-to-board socket. The board frame size is 32x32mm.



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YDS-CMFL0272-IMX586 V1.0 48MP Sony IMX586 Fixed Focus Camera Module

G5 IMX586 L0272 镜头模组



Top View



Side View



Bottom View



Isometric View



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YDS-CMFL0272-IMX586 V1.0 48MP Sony IMX586 Fixed Focus Camera Module

Specifications

Model No.	YDS-CMFL0272-IMX586 V1.0		
Image Sensor	IMX586		
Image Sensor Type	CMOS		
Effective Pixels	48 Megapixels		
Sensor Size	1/2.0"		
Pixel Size	0.8um x 0.8um		
Video Frame Rate	4K@24/25/30/FPS 2.7K@24/25/30/48/50/60FPS 1080P@24/25/30/48/50/60/120FPS 720P@24/25/30/48/50/60/120/240FPS		
Photo Resolution (with Master Board)	48MP (8000x6000) 14MP (4592x3056) 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 28 mm		
PCB Screw Hole Spacing 28 x 28 mm			
PCB Screw Hole Diameter	2 mm		
Lens Mount Screw Diameter	1.6 mm		



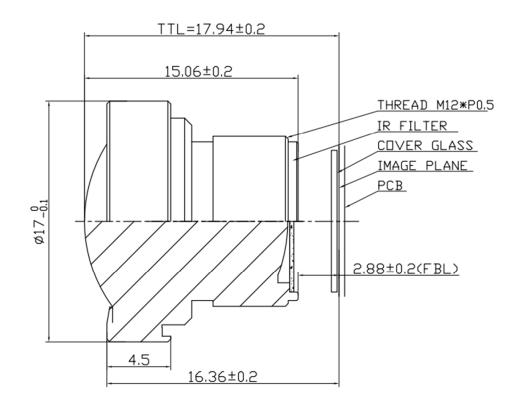
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YDS-CMFL0272-IMX586 V1.0 48MP Sony IMX586 Fixed Focus Camera Module

Lens Specifications

Lens Model No.	L0272
EFL (Focal Length)	2.7 mm
TTL (Total Length)	17.94 mm
F. No.	2.0
Diagonal View Angle (DFOV)	175° (DFOV) (y' = 8.812 mm)
Horizonal View Angle (HFOV)	152° (HFOV) (y' = 7.68 mm)
Vertical View Angle (VFOV)	88° (VFOV) (y' = 4.32 mm)
Distortion	<-93%
Relative Illumination	>40%
Lens Operating Temperature	-30°C to +75°C
Lens Storage Temperature	-40°C to +85°C

Lens Drawing

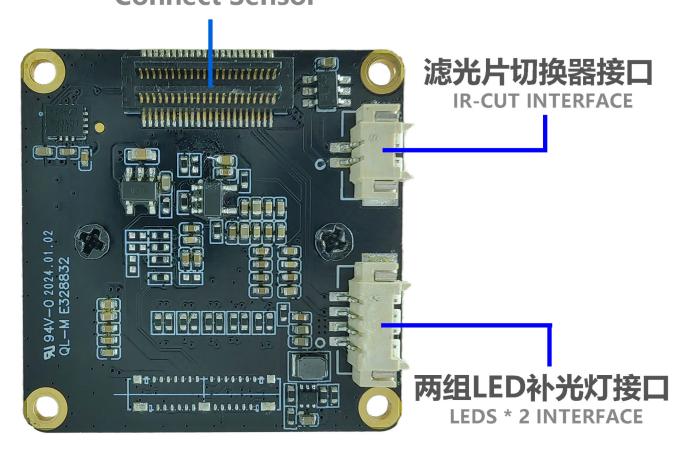




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YDS-CMFL0272-IMX586 V1.0 48MP Sony IMX586 Fixed Focus Camera Module

通过板对板连接器连接G5主板 Connect Sensor



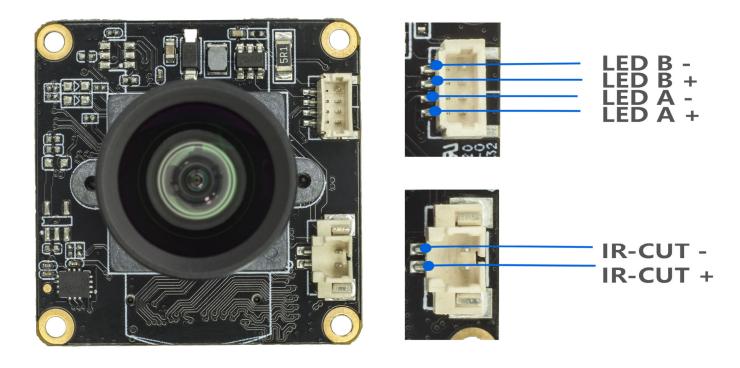
The IR-Cut filter switch interface is used by lenses with filters. Users need to match the lens that supports the IR-Cut switch structure in order to support this function.

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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YDS-CMFL0272-IMX586 V1.0 48MP Sony IMX586 Fixed Focus Camera Module



The two groups of fill light interfaces support the expansion of infrared lights and white light boards to provide fill light for the device. Note: The IR-Cut filter switch interface is used by lenses with filters, but this camera module does not support this function.

SONY

Diagonal 8.000 mm (Type 1/2.0) 48Mega-Pixel CMOS Image Sensor with Square Pixel for Color Cameras

IMX586-AAJH5-C

General description and application

IMX586 is a diagonal 8.000 mm (Type 1/2.0) 48 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Sony's back-illuminated and stacked CMOS image sensor to achieve high speed image capturing by column parallel A/D converter circuits and high sensitivity and low noise image (comparing with conventional CMOS image sensor) through the backside illuminated imaging pixel structure. R, G, and B pigment primary color mosaic filter is employed. It operates with five power supply voltages: analog 2.9 V and 1.8V, digital 1.1 V, PLL-PHY 1.1V and 1.8 V for input/output interface and achieves low power consumption. In addition, this product is designed for use in cellular phone and tablet PC. 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 cellular phone and tablet PC. Consult your Sony Semiconductor Solutions

Functions and Features

◆ Back-illuminated and stacked CMOS image sensor

Corporation sales representative if you have any questions.

- ◆ Quad Bayer Coding color filter arrangement
- ◆ Phase Detection Auto Focus (PDAF)
- ♦ High Frame Rate 30fps@Full resolution (QBC Re-mosaic) / 30fps@QBC-HDR / 120fps@2x2 Adjacent Pixel Binning (16:9) / 240fps@2x2 Adjacent Pixel Binning V2H2(16:9)
- ◆ High signal to noise ratio(SNR)
- ◆ Dual sensor synchronization operation
- ◆ Built-in 2D Dynamic Defect Pixel Correction
- ◆ Lens Shading Correction (LSC)
- Built-in temperature sensor
- ◆ Output video format of RAW10/8, COMP8
- ◆ QBC Re-mosaic function
- ◆ QBC HDR function
- ◆ Two PLLs for independent clock generation for pixel control and data output interface
- ◆ CSI-2 serial data output
 - MIPI D-PHY 2lane/4lane, Max. 2.5Gbps/lane, D-PHY spec. ver. 1.2 compliant MIPI C-PHY 1/2/3trio, Max 2.5Gsps/Trio, C-PHY spec ver. 1.0 compliant
- ◆ 2-wire serial communication (Supports I²C "Fast mode" and "Fast-mode Plus")
- ◆ 28K bit of OTP ROM for users

Sony Semiconductor Solutions Corporation reserves the right to change products and specifications without prior notice. This information does not convey any license by any implication or otherwise under any patents or other right. Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony Semiconductor Solutions Corporation cannot assume responsibility for any problems arising out of the use of these circuits.

Device Structure

◆ CMOS image sensor

♦ Image size : Diagonal 8.000 mm (Type 1/2.0)

◆ Total number of pixels
♦ Number of effective pixels
♦ Number of active pixels
18032 (H) × 6248 (V) approx. 50.18 M pixels
18032 (H) × 6088 (V) approx. 48.89 M pixels
18000 (H) × 6000 (V) approx. 48.00 M pixels

♦ Chip size : 7.504 mm (H) × 5.659 mm (V) ♦ Unit cell size : 0.80 μm (H) × 0.80 μm (V)

◆ Substrate material : Silicon

Absolute Maximum Ratings

Item	Symbol	Ratings	Unit	notes
Supply voltage (analog1)	VANA1	-0.3 to +4.2	V	
Supply voltage (analog2)	VANA2	-0.3 to +2.52	V	
Supply voltage (digital1, digital2(PLL-PHY))	VDIG1,2	-0.3 to +1.54	V	refer to
Supply voltage (interface)	VIF	-0.3 to +2.52	V	VSS level
Input voltage (digital)	VI	-0.3 to +2.52	V	
Output voltage (digital)	VO	-0.3 to +2.52	V	
Guaranteed Operating temperature	TOPR	-20 to +70	°C	
Guaranteed storage temperature	TSTG	-30 to +80	°C	
Guaranteed performance temperature	TSPEC	-20 to +60	°C	

Recommended Operating Voltage

Item	Symbol	Ratings	Unit	notes
Supply voltage (analog1)	VANA1	2.9 ± 0.1	V	
Supply voltage (analog2)	VANA2	1.8 ± 0.1	V	refer to
Supply voltage (digital1, digital2(PLL-PHY))	VDIG1,2	1.1 ± 0.1	V	VSS level
Supply voltage (interface)	VIF	1.8 ± 0.1	V	



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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

ina Himax GalaxyCore PixArt SmartSens Sensors
Description
ground for digital circuit
ground for analog circuit
DVP PCLK output
power down active high with internal pull-down resistor
system input clock
reset active low with internal pull-up resistor
no connect
SCCB data
SCCB input clock
DVP VSYNC output
DVP HREF output
power for I/O circuit
power for VCM circuit
power for analog circuit
power for digital circuit
strobe output
synchronize the VSYNC signal from the other sensor
SCCB last bit ID input
mechanical shutter output indicator
frame exposure / mechanical shutter
general purpose inputs
I2C slave address select
CEN chip enable active high on VCM driver IC
MIPI 1st data lane negative output
MIPI 1st data lane positive output
MIPI 2nd data lane negative output
MIPI 2nd data lane positive output
MIPI 3rd data lane negative output
MIPI 3rd data lane positive output
MIPI 4th data lane negative output
MIPI 4th data lane positive output
MIPI clock negative output
MIPI clock positive output
DVP data output port 0
DVP data output port 1
DVP data output port 2
DVP data output port 3
DVP data output port 4
DVP data output port 5
DVP data output port 6
DVP data output port 7
DVP data output port 8
DVP data output port 9
DVP data output port 10
DVP data output port 11



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Camera Reliability Test

Reliability Inspection Item		Tanking Makhad	Acceptance Criteria		
Cat	egory	Item	Testing Method	Acceptance Cintena	
Storage		High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation	
	Temperature	Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation	
	Operation	High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation	
Environmental	Temperature	Low -20°C 24 Hours	Temperature Chamber	No Abnormal Situation	
Environmental	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	
	Drop Test	Without Package 60cm	10 Times on Wood Floor	Electrically Functional	
	(Free Falling)	With Package 60cm	10 Times on Wood Floor	Electrically Functional	
		50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional	
Physical	Vibration Test	50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional	
Filysical		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		
	ESD Test	Contact Discharge 2 KV	ESD Testing Machine	Electrically Functional	
	ESD Test	Air Discharge 4 KV	ESD Testing Machine	Electrically Functional	
Electrical	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

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Inspection It		ı Item	lana antina Mathard	Chandard of Inconsting	
Cateo	gory	Item	Inspection Method	Standard of Inspection	
		Color	The Naked Eye	Major Difference is Not Allowed.	
	FPC/ PCB	Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.	
		Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)	
		Scratches	The Naked Eye	The Inside Crack Exposure is Not Allowed	
	Holder	Gap	The Naked Eye	Meet the Height Standard	
Appearance	Holdel	Screw	The Naked Eye	Make Sure Screws Are Presented (If Any)	
		Damage	The Naked Eye	The Inside Crack Exposure is Not Allowed	
		Scratch	The Naked Eye	No Effect On Resolution Standard	
	Lens	Contamination	The Naked Eye	No Effect On Resolution Standard	
	Lens	Oil Film	The Naked Eye	No Effect On Resolution Standard	
		Cover Tape	The Naked Eye	No Issue On Appearance.	
		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	
Function	Image	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	
		Height	The Naked Eye	Follows Approval Data Sheet	
Dimer	neion	Width	The Naked Eye	Follows Approval Data Sheet	
Dille	131011	Length	The Naked Eye	Follows Approval Data Sheet	
		Overall	The Naked Eye	Follows Approval Data Sheet	



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YDSCAM Package Solutions

YDS Camera Module



Tray with Grid and Space



Complete with Lens Protection Film



Place Cameras on the Tray





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YDSCAM Package Solutions

Full Tray of Cameras



Place Tray into Anti-Static Bag



Cover Tray with Lid



Vacuum the Anti-Static Bag





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YDSCAM Package Solutions

Sealed Vacuum Anti-Static Bag with Labels

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





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YDSCAM Package Solutions

Place Foam Sheets Between Tray Bags



Place Foam Sheets and Trays into Box



Seal the Carbon Box



Foam Sheets are Larger Than Trays



Foam Sheets are Tightly Fitting in Box



Label the Carbon Shipping Box





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YDSCAM Package Solutions

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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YDSCAM Package Solutions

Place Camera Sample into Anti-Static Bag





Label the Sample Bags



Place Samples into the Carbon Box



Place Connectors into Anti-Static Bag





Place Connectors into Reel



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











