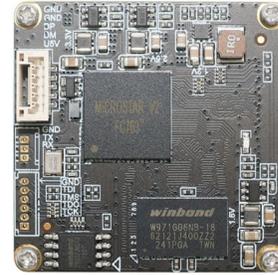# YDS-USB-SM2-08100-F42
8MP 4K M12 Fixed Focus USB 2.0 Camera Module

Front View   Back View

YDS-USB-SM2-08100-F42 is an 8MP Low Light Fixed Focus USB camera module based on 1/1.8" image sensor. It delivers 3840 x 2160 resolution at 2.00um ultra large pixels plus DSP 3D noise reduction algorithm enables high detailed images in extremely low light illumination conditions, providing a clearer, smoother, and more natural appearance. The S-mount (M12) lens holder enables customers to choose different lens as per varies applications. This camera module is ideal solution for vehicle-road collaboration, industrial inspection, industrial equipment, all-in-one machines, display stands, media equipment, advertising machines, outdoor/indoor security camera.

Key Features

   8 Megapixels 3840 x 2160 array at 30 FPS
   High speed USB 2.0 Plug and Play
   MJPG output format
   Low power consumption
   Compact size 38x38 mm
   UVC compliant to Windows, Linux, OS with UVC UAC driver
   USB OTG (On-The-Go) Support

YDS-USB-SM2-08100-F42
8MP 4K M12 Fixed Focus USB 2.0 Camera Module

Top View

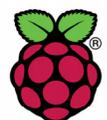Side View

Bottom View

USB Cable

YDS CAMERA MODULE

your best camera partner

YDS-USB-SM2-08100-F42
8MP 4K M12 Fixed Focus USB 2.0 Camera Module

Camera Module No.	**YDS-USB-SM2-08100-F42**
Image Sensor	8MP 4K Low Light
Sensor Type	1/1.8"
Resolution	2.00 um x 2.00 um
Pixel Size	3840 x 2160 @ 30 FPS
TTL	25.75 mm
F. NO.	2.00
View Angle	42°(DFOV) 34°(HFOV) 25.6°(VFOV)
Lens Dimensions	17.00 x 17.00 mm
Module Type	Fixed Focus
Interface	USB 2.0
Output Format	MJPG
Auto Control	Saturation, Contrast, Acutance White Balance, Exposure
Audio (Optional)	Digital Microphone, Single, Dual Channel
Input Voltage	DC 5V
Working Current	Max 500mA
PCB Size	38.0 x 38.0 x 44.3 mm
System Compatibility	Windows XP (SP2, SP3), Vista, 7, 8, 10, 11 Android, Mac OS, Linux or OS with UVC UAC Driver, Raspberry Pi by USB Port
Software for USB Camera	AMCAP, Webcam Viewer, V4L2 Controls Contacam, VLC Player, MotionEye OS iSpy, ZoneMider, Yawcam
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C

Wide Compatibility with Windows, Android, Mac OS, Linux, and Raspberry Pi

www.YDSCAM.com   sales@ydscam.com   Phone (WeChat, QQ): (+86) 177 2732 6718

YDS

YDS-USB-SM2-08100-F42
8MP 4K M12 Fixed Focus USB 2.0 Camera Module

Additional Lens Options				
Lens Specs	**A**	**B**	**C**	**D**
TTL (mm)	29.56	30.00	30.00	30.00
EFL (mm)	3.00	4.20	8.45	5.10
F. No.	3.0	1.0	1.0	1.0
DFOV (degree)	121	134	66	110
HFOV (degree)	113	111	57	93
TV Distortion	<6%	16.5%	2.0%	13.0%

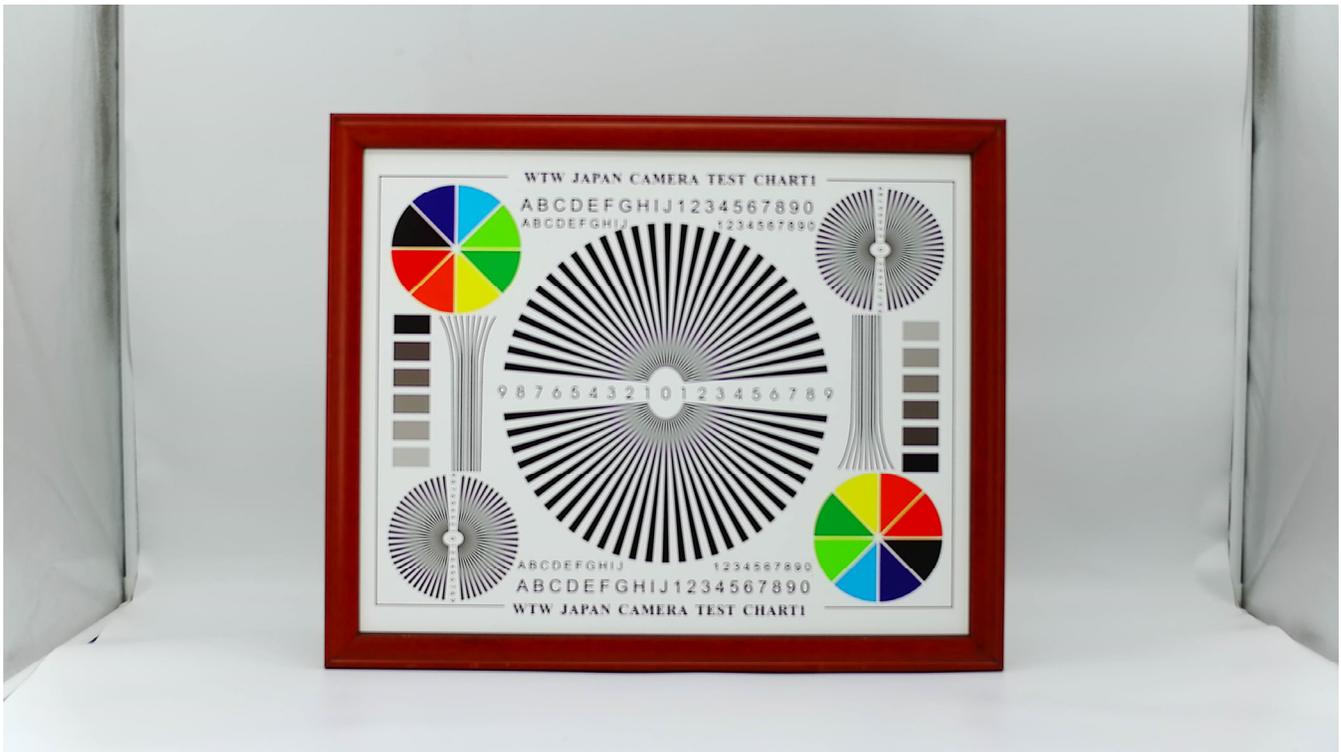| Format	Resolution	Frame Rate
		USB 2.0
MJPG	**640 x 480 (VGA)**	**30 FPS**
	1280 x 720 (720P)	**30 FPS**
	1920 x 1080 (1080P)	**30 FPS**
	3840 x 2160 (8MP)	**30 FPS**

YDS-USB-SM2-08100-F42
8MP 4K M12 Fixed Focus USB 2.0 Camera Module

YDS-USB-SM2-08100-F42
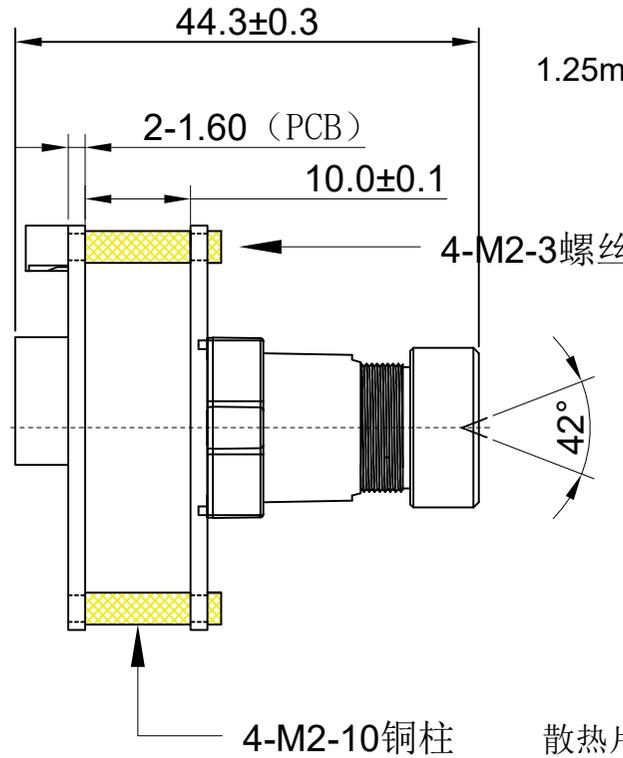## 8MP 4K M12 Fixed Focus USB 2.0 Camera Module

PIN	SIGNAL
1	USB_5V
2	DM(-)
3	DP(+)
4	GND
5	GND
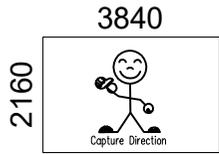
Version	Mark	Information	Date
V1.0	PD	First Version	2024-01-12
	2		

3840

2160

Capture Direction

TOP VIEW

38.0±0.2
34.0±0.2
20
17
38.0±0.2
34.0±0.2
17
Ø15

SIDE VIEW

44.3±0.3
2-1.60（PCB）
10.0±0.1
4-M2-3螺丝
42°
4-M2-10铜柱

BOTTEM VIEW

1.25mm-5P 立贴
16.5
16.5
1   5
12
12
散热片
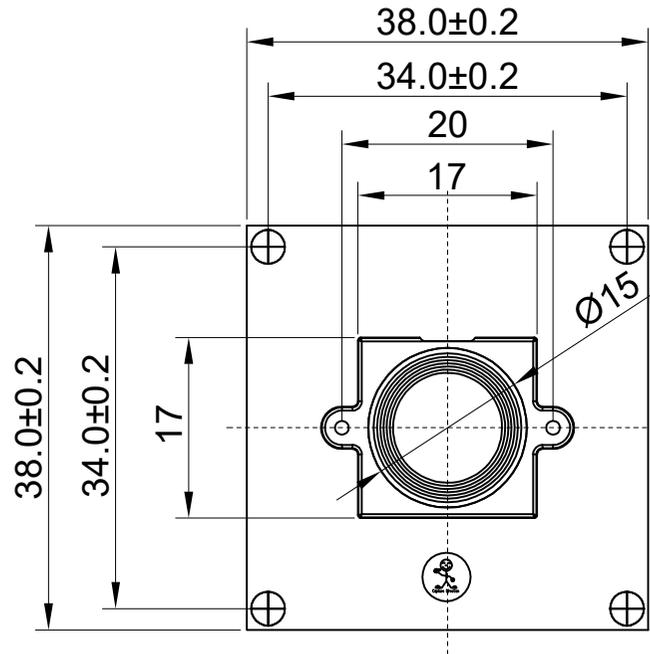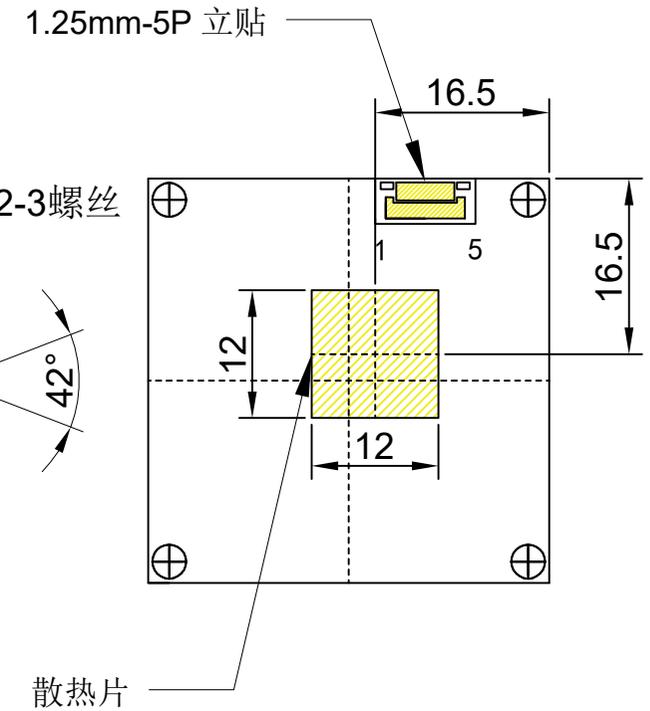
Parameters:

1、Sensor specification:

Image Sensor：8M

Pixel Size：2.0umX2.0um

Image Size：1/1.8

2、Lens specification:

FOV：D:42°/H:34°/V:25.6°

F/NO.：2.0

TV distortion：≤-2.0%

EFL：12mm

TTL：25.75mm

www.YDSCAM.com

Designed By	Lu	Model Name:	SM2-08100	
Checked By	He cheng	Projection Type: Third Angle	Unit: mm	Material: _____
			Scale: 1:1	Sheet: 1 of 1	Version: 1/0

Cameras Applications

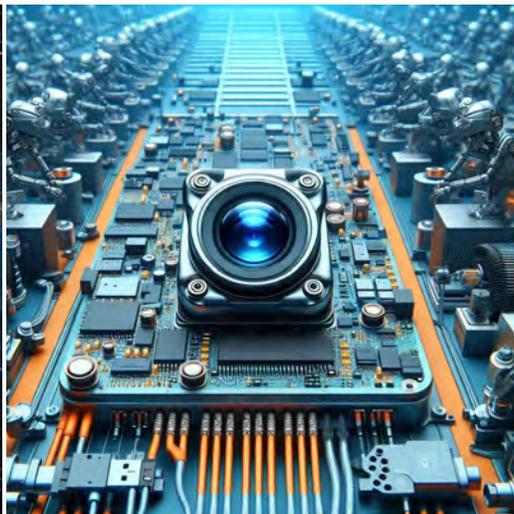Automotive Driver Pilot
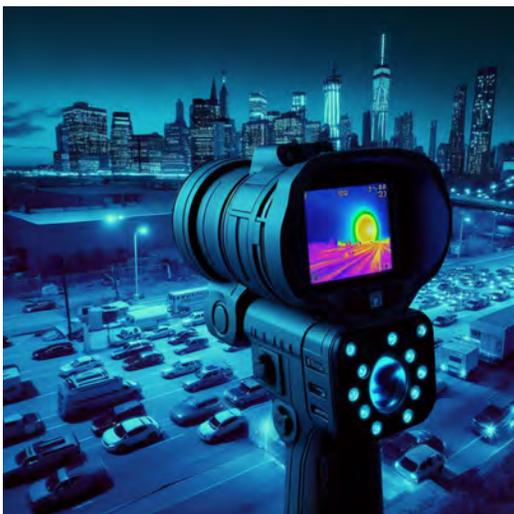

Live Streaming

Video Conference

Eye Tracker Biometric Detection

Machine Vision

Agricultural Monitor

Night Vision Security

Drone and Sports Eagle Eyes

Interactive Pet Camera

www.YDSCAM.com   sales@ydscam.com   Phone (WeChat, QQ): (+86) 177 2732 6718

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

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

YDS CAMERA MODULE

Inspection Item		Inspection Method	Standard of Inspection
Category	Item		
Appearance	FPC/ PCB — Color	The Naked Eye	Major Difference is Not Allowed.
	FPC/ PCB — Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.
	FPC/ PCB — Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)
	Holder — Scratches	The Naked Eye	The Inside Crack Exposure is Not Allowed
	Holder — Gap	The Naked Eye	Meet the Height Standard
	Holder — Screw	The Naked Eye	Make Sure Screws Are Presented (If Any)
	Holder — Damage	The Naked Eye	The Inside Crack Exposure is Not Allowed
	Lens — 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
	Lens — Cover Tape	The Naked Eye	No Issue On Appearance.
Function	Image — No Communication	Test Board	Not Allowed
	Image — Bright Pixel	Black Board	Not Allowed In the Image Center
	Image — Dark Pixel	White board	Not Allowed In the Image Center
	Image — Blurry	The Naked Eye	Not Allowed
	Image — No Image	The Naked Eye	Not Allowed
	Image — Vertical Line	The Naked Eye	Not Allowed
	Image — Horizontal Line	The Naked Eye	Not Allowed
	Image — Light Leakage	The Naked Eye	Not Allowed
	Image — Blinking Image	The Naked Eye	Not Allowed
	Image — Bruise	Inspection Jig	Not Allowed
	Image — Resolution	Chart	Follows Outgoing Inspection Chart Standard
	Image — Color	The Naked Eye	No Issue
	Image — Noise	The Naked Eye	Not Allowed
	Image — Corner Dark	The Naked Eye	Less Than 100px By 100px
	Image — 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

YDS CAMERA MODULE

your best camera partner

YDSCAM Package Solutions
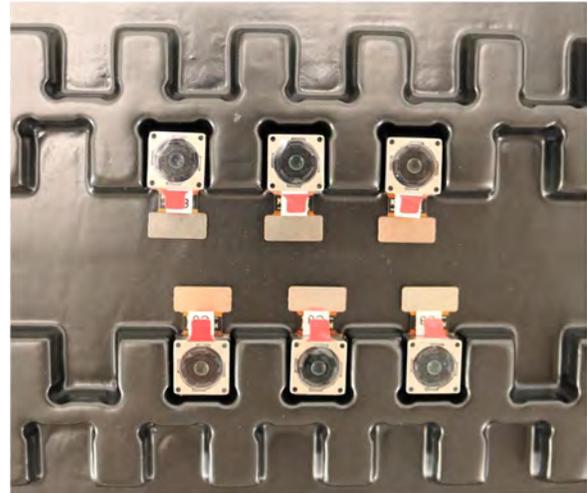
YDS Camera Module
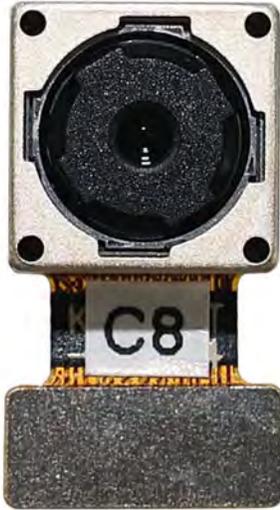
Complete with Lens Protection Film
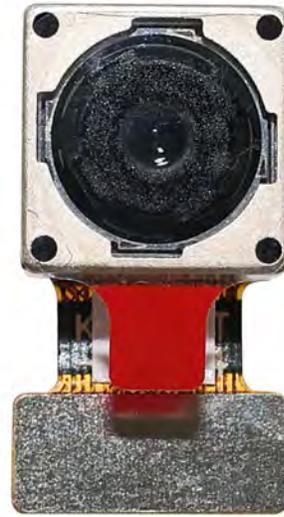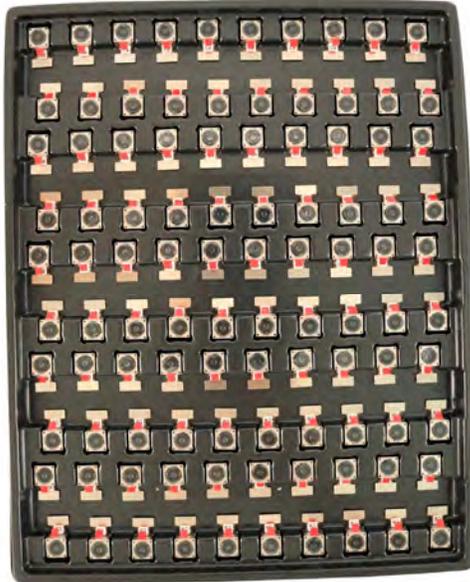
Tray with Grid and Space

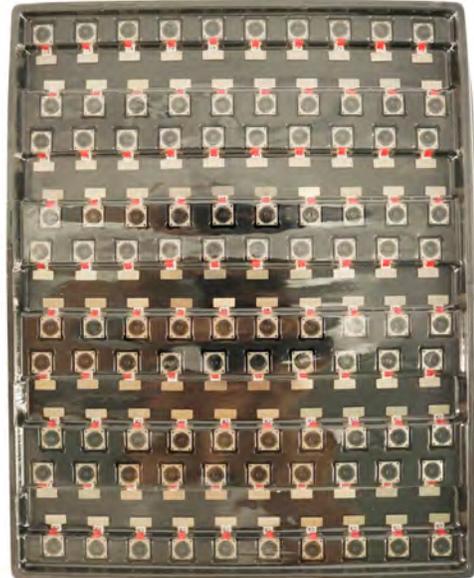Place Cameras on the Tray

YDSCAM Package Solutions

Full Tray of Cameras

Cover Tray with Lid

Place Tray into Anti-Static Bag

Vacuum the Anti-Static Bag

YDSCAM Package Solutions

Sealed Vacuum Anti-Static Bag with Labels

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

YDSCAM Package Solutions

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
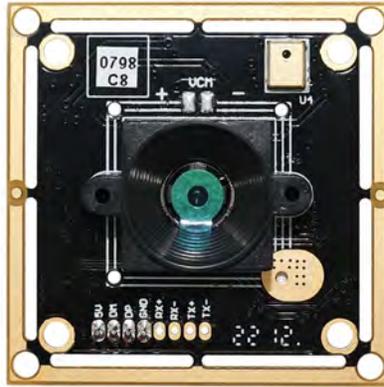
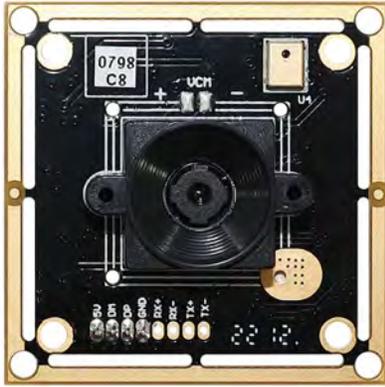Label the Carbon Shipping Box

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

www.YDSCAM.com   sales@ydscam.com   Phone (WeChat, QQ): (+86) 177 2732 6718

YDSCAM Package Solutions

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

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.

USB camera module
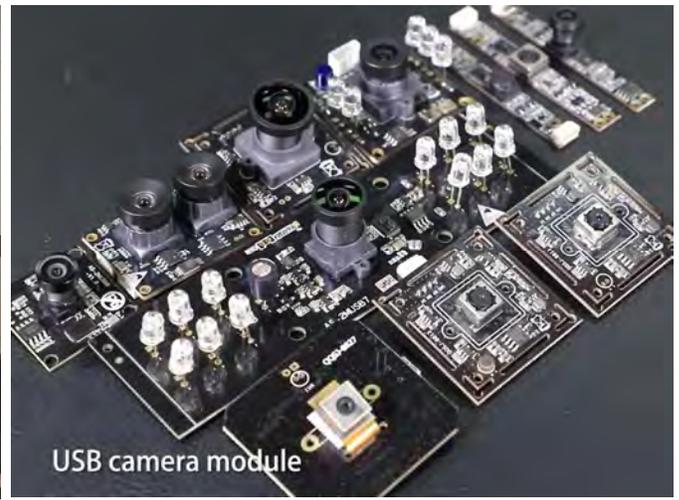
Limited Warranty

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.

www.YDSCAM.com   sales@ydscam.com   Phone (WeChat, QQ): (+86) 177 2732 6718

YDS Strength

Powerful Factory

Professional Service

Promised Delivery