

# CMOS Cameras

## Venuslab-L3 CMOS Camera

Professional micro-imaging & industrial inspection scenarios

- High-performance sensors and hardware-level cache design
- High-speed links and low-noise design
- Professional color engine and parameter adjustability
- Full-scenario compatibility and development support
- Environmental adaptability and durability



One Platform Many Possibilities

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## Overview

Introduction to the Venuslab-L3 CMOS Camera :

The Venuslab-L3 CMOS Camera is a high-end professional imaging device launched by Venuslab. It features a core architecture of "Aptina high-performance CMOS sensor + on-board cache + USB3.0 high-speed transmission". Its resolution ranges from 1.2M to 14M pixels, catering to different precision requirements. The camera adopts a standard C-mount design, which is compatible with mainstream brand microscopes such as NIKON and LEICA. It has a built-in Ultra-Fine color engine and a high-quality IR-CUT filter, enabling accurate color reproduction in the 380-650nm spectral range. Coupled with a natural heat dissipation structure, it effectively reduces image noise. Relying on the USB3.0 5Gbps high-speed interface and multi-level pixel binning technology, the 14M pixel model can achieve a frame rate of 53.3fps in 4x4 binning mode, while the on-board cache ensures the stability of data transmission. The software comes standard with the ToupView image processing application, offering SDKs for multiple platforms such as Windows and Linux, as well as rich programming interfaces, which are suitable for secondary development needs. It is widely used in scenarios such as brightfield microscopic imaging, industrial inspection, scientific research and education, and can operate stably in a wide temperature range of -10 to 50 .

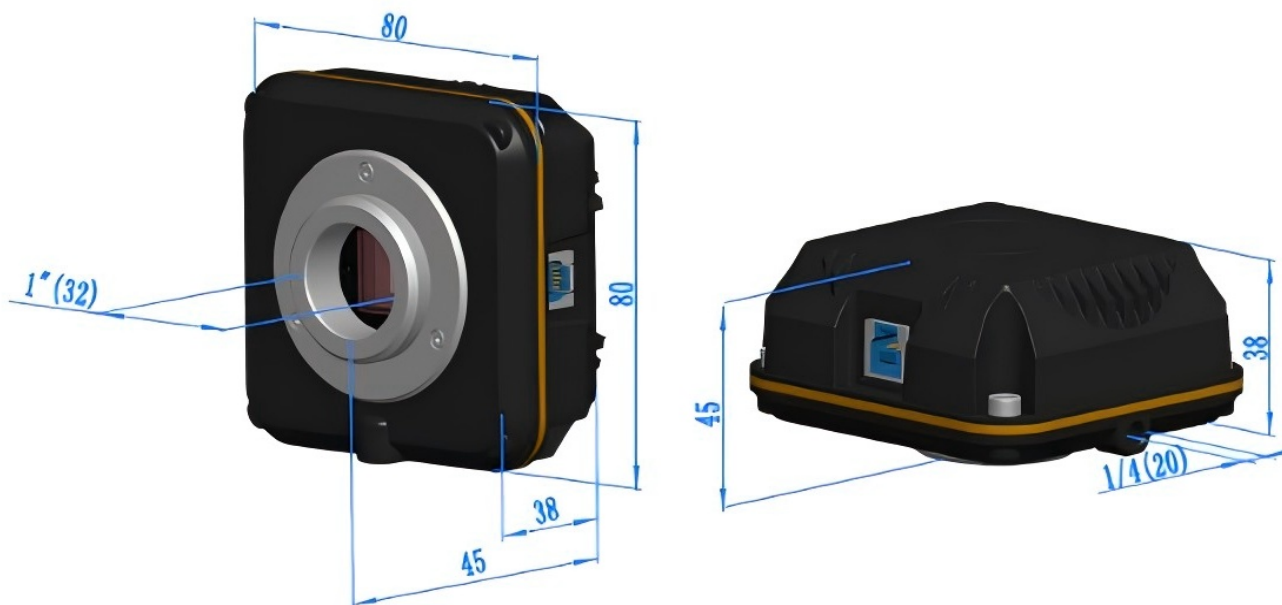
Features:

- C-Mount (25.4 mm, 32 TPI);
- Aptina CMOS scientific-grade sensor;
- Onboard memory, precise synchronization, high frame rate, stable performance;
- Efficient heat dissipation, low noise;
- USB3.0 (5 Gbps) high-speed interface;
- Ultra-Fine color engine, excellent color reproduction;
- Windows/Linux/Mac multi-platform SDK;
- Support for C/C++, C#/VB.NET, DirectShow, Twain API.

## Dimension:

Schematic diagram of the external dimensions of the Venuslab-L3 CMOS Camera. The camera housing is made of hard aluminum alloy through machining, ensuring resistance to impact under heavy load conditions. A high-quality IR-CUT is installed at the front end of the camera sensor, which mainly functions to filter out infrared light waves in imaging and protect the camera sensor at the same time.

Compared with cameras of other brands, Venuslab's cameras have no moving parts to ensure that the camera is sturdy, reliable, and durable. At the same time, there is no image blurring caused by the shaking of moving parts.



## Specifications

Common Parameter Specification Table

Other Specification	
Spectral Range	380-650nm (with IR-cut Filter)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/ NA for Monochromatic Sensor
Color Technique	Ultra-Fine Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc)
ADC	8 Bit / 12 Bit
Recording System	Still Picture and Movie
Cooling System*	Natural with High Performance Cooling Structure
Operating Environment	
Operating Temperature (in Centidegree)	-10 - 50
Storage Temperature (in Centidegree)	-20 - 60
Operating Humidity	30 - 80% RH
Storage Humidity	10 - 60% RH
Power Supply	DC 5V over PC USB Port
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 /10 /11 (32 & 64 bit)OSx(Mac OS X)Linux
PC Requirements	CPU: Equal to Intel Core 2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High - speed Port
	Display: 17" or Larger
	CD - ROM

## Packing List

Packing Information for Venuslab-L3 CMOS Camera



Standard Camera Packing List			
A	Carton L:40cm W:36cm H:36cm (16pcs, 12~17Kg/ carton), not shown in the photo		
B	Gift box L:16.4cm W:16.4cm H:9.6cm (0.72~0.8Kg/ box)		
C	One L3CMOS series camera		
D	High-speed USB3.0 A male to B male gold-plated connectors cable /2.0m		
E	CD (Driver & utilities software, Ø12cm)		
Optional Accessory			
F	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube(Please choose 1 of them for your microscope)	108001/AMA037108002/AMA050108003/AMA075
		C-mount to Dia.31.75mm eyepiece tube(Please choose 1 of them for your telescope)	108008/ATA037108009/ATA050108010/ATA075
G	Fixed lens adapter	C-mount to Dia.23.2mm eyepiece tube(Please choose 1 of them for your microscope)	108005/FMA037108006/FMA050108007/FMA075
		C-mount to Dia.31.75mm eyepiece tube(Please choose 1 of them for your telescope)	108011/FTA037108012/FTA050108013/FTA075
Note: For F and G optional items, please specify your camera type(C-mount, microscope camera or telescope camera) , ToupTek engineer will help you to determine the right microscope or telescope camera adapter for your application;			
H	108015(Dia.23.2mm to 30.0mm ring)/Adapter rings for 30mm eyepiece tube		
I	108016(Dia.23.2mm to 30.5mm ring)/ Adapter rings for 30.5mm eyepiece tube		
J	108017(Dia.23.2mm to 31.75mm Ring)/ Adapter rings for 31.75mm eyepiece tube		
K	Calibration kit	106011/TS-M1(X=0.01mm/100Div.);106012/TS-M2(X,Y=0.01mm/100Div.);106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)	

## Service & Support

We are dedicated to delivering exceptional optoelectronic solutions to every client. From precision manufacturing and secure delivery to full-lifecycle technical support, we are here to ensure a seamless and reliable experience at every step.

### 1. Warranty Policy

#### Quality First, Worry-Free Operation

**Warranty Period:** We offer a **two-year** warranty service for all of our core optoelectronic products, effective from the date of shipment.

**Coverage:** We provide free repair or replacement services for malfunctions caused by material defects or workmanship errors under normal operating conditions.

**Rapid Response:** Upon receiving a warranty claim, we guarantee to initiate the assessment process within **24 hours** to minimize your equipment downtime.

## 2. Technical Support

### Expert Team, Full-Process Guidance

**Technical Consultation:** Our team of senior optical engineers provides **24/7 online support** to assist with installation, commissioning, optical path alignment, and parameter optimization.

**Scheduled Maintenance:** We offer full-lifecycle maintenance recommendations, including firmware upgrades, optical component cleaning guidelines, and precision calibration services.

**Training Services:** We provide customized remote or on-site operational and safety training to ensure your team can operate the equipment efficiently and safely.

## 3. Logistics & Delivery

### Precision Packaging, Global Reach

**Professional Packaging:** Given the fragile nature of optical instruments, we utilize industrial-grade shockproof, anti-static, and moisture-proof vacuum packaging to ensure zero damage during transit.

**Logistics Partners:** We partner with top-tier global logistics providers (**DHL / FedEx / UPS / SF Express**) to offer reliable shipping with real-time tracking.

**Shipping Insurance:** All shipments are fully insured to eliminate logistics risks.

## 4. Compliance & Certification


### Strict Standards, Total Compliance

**Quality Certification:** Our manufacturing process is **ISO 9001 certified**, and our products comply with international standards such as **CE** and **RoHS**.

**Export Compliance:** "Committed to environmental responsibility, all our products comply with **RoHS 2.0** and **REACH** standards, ensuring safety and global compliance."

## Explore Series

Venuslab-L3-14KP-A	1x1 2x2 4x4	1.4x1.4	14M/MT9F002(C) 1/2.3" (5.73x4.60)	0.1ms~ 2000ms	7.6@4904x2846 26.2@ 2452x1364 53.3@1226x682	0.72μV/lux-sec 65.3dB 35.5dB
Venuslab-L3-12KP-A	1x1 2x2 4x4	1.55x1. 55	12M/MXS577(C) 1/2.1" (5.95x4.71)	0.1ms~ 2000ms	8.5@3840x3040 53.8@ 1920x1516 49@1280x1016 137@960x508	0.25mv with 1/ 30s 0.5mv with 1/60s
Venuslab-L3-10KP-A	1x1 2x2 4x4	1.55x1. 55	10M/MXS577(C) 1/2.3" (5.65x4.26)	0.1ms~ 2000ms	8.5@3664x2748 49@1832x1374 45@1221x916 130@610x458	0.25mv with 1/ 30s 0.5mv with 1/60s
Venuslab-L3-8.5KP-A	1x1 2x2 4x4	1.55x1. 55	8.5M/MXS577(C) 1/2.4" (5.16x3.95)	0.1ms~ 2000ms	11@3264x2448 56@1632x1226 50@1088x816 167@544x408	0.25mv with 1/ 30s 0.5mv with 1/60s
Venuslab-L3-5.1KP-A	1x1 2x2 3x3	2.2x2.2	5.1M/AR0521(C) 1/2.5" (4.70x3.52)	0.1ms~ 2000ms	15@3292x1944 49@1646x972 49@1097x648	73dB 40dB
Venuslab-L3-3.1KP-A	1x1 4x1 2x2	2.2x2.2	3.1M/AR0330(C) 1/3" (4.80x3.37)	0.1ms~ 2000ms	97.2@3648x854 27.3@1024x854 53.3@1024x770	1.9μV/lux-sec 100dB 93dB

 Get in touch with our team to explore configurations, request a quote, or learn more about customized solutions tailored to your needs.

Let us help you move science forward—faster and smarter.

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