

Scientific Cameras

VenusLab Astra UltraSpeed Series

Transient Vision Engine: High-sensitivity & ultra-high-speed low-light benchmark.

- Ultra-high-speed imaging capability
- High-sensitivity low-light adaptation
- Microsecond-level precise control



One Platform Many Possibilities

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Get a Quote



Get Expert Advice
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www.venuslabtech.com

Overview

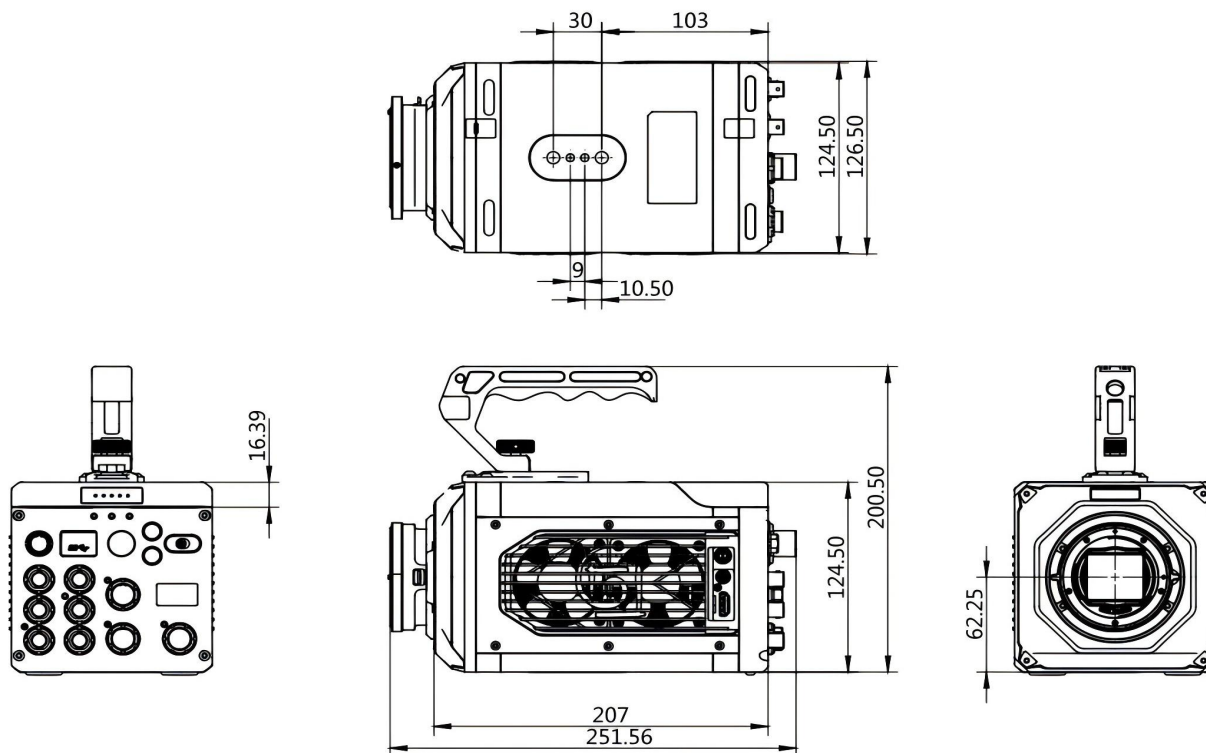
Product introduction of VenusLab Astra UltraSpeed Series :

It adopts a high-end customized BSI CMOS chip and reconstructs the photosensitive structure through back-illuminated technology, increasing the incident photon capture efficiency to a peak quantum efficiency of 85%, achieving "no loss of transient details in low-light environments" in ultra-high-speed imaging scenarios. Equipped with a built-in mechanical shutter, the minimum exposure time is as low as 150ns, and the PIV double-frame cross-frame time is only 250ns, providing "microsecond-level time precision" dynamic visual support for fields such as hypersonic aerodynamics and high-speed impact vibration.

Features of the VenusLab Astra UltraSpeed Series:

- Ultra-high sensitivity imaging
- Ultra-high frame rate breakthrough
- Industrial-grade reliable protection
- Intelligent and efficient triggering

Dimensions of VenusLab Astra UltraSpeed Series:



Specifications

VL-Apex 25G, VL-Surge 20G, VL-Peak 16G have the same parameters :

Parameter Category	Parameter Content
Sensor Type	BSI CMOS
Maximum Resolution	1280×1024
Electronic Shutter	Global Shutter
Minimum Exposure Time	150ns
PIV Frame Interval	250ns
Auto Exposure	Supported
Extreme Dynamic Range	Supported
Data Interface	Gigabit Ethernet Port/10 Gigabit Ethernet Port
Video Interface	SDI/HDMI
Sync Input Interface	Compatible with 3.3/5V TTL
Sync Output Interface	5V TTL

Timing Input Interface	Supports DC IRIG-B Input
Control Interface	Reserved RS422 Control Interface
Trigger Input	Camera Receives External Trigger Signal
I/O	1 Reserved Output, Customizable
Power Supply	24VDC
Power Consumption	200W
Operating Temperature	-10 ~ 50
High and Low Temperature Control	-40 ~ 60
Operating Humidity	0 ~ 95%
Protection Class	IP64
Shock Resistance	30Grms @11ms, 3 Axes 6 Directions, 60 Pulses
Vibration Resistance	Anti-Transport Vibration
EMC	Supported
Lens Interface	Standard EF Mount, Optional F and C Mounts
Dimension (Without Lens)	125x125x210mm
Weight (Without Accessories)	4500g

Resolution-Frame Rate-Recording Schedule

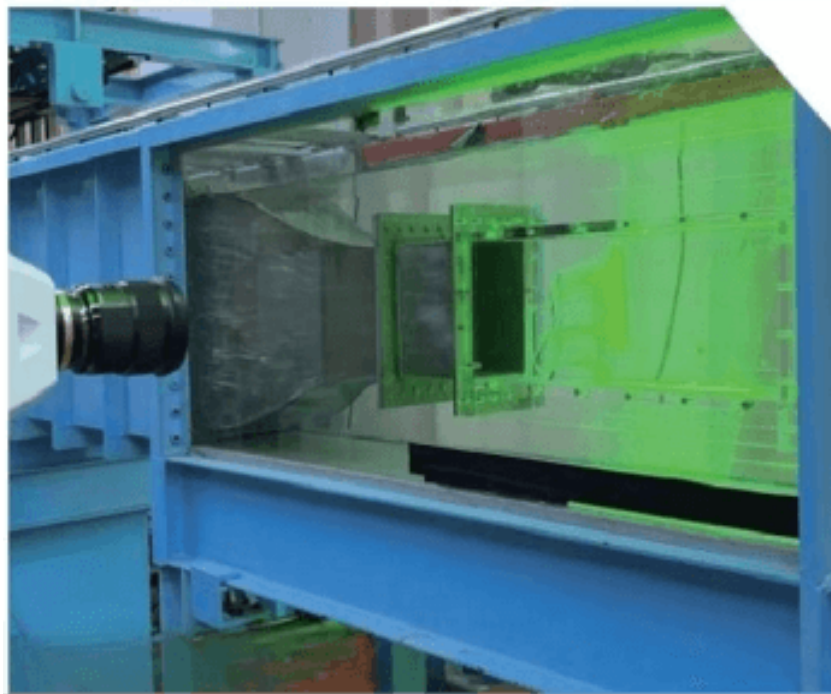
Model	VL-Apex 25G(Calculated by 320GB, 10bit)		VL-Surge 20G(Calculated by 320GB, 10bit)		VL-Peak 16G(Calculated by 320GB, 10bit)		
	Resolution	Frame Rate fps	Record Time S	Frame Rate fps	Record Time S	Frame Rate fps	Record Time S
	1280x1024	25000	6.39	20000	8.49	16000	11.11
	1280x896	29000	6.26	23000	8.42	18000	11.32
	1280x720	35000	6.31	28000	8.32	22000	11.56
	1280x640	40000	6.39	32000	8.36	25000	11.42
	1280x512	47000	6.92	40000	8.49	32000	11.11
	1280x256	96000	6.74	78000	8.75	62000	11.53
	1280x16	1000000	11.42	645000	18.81	570000	21.55

Applications

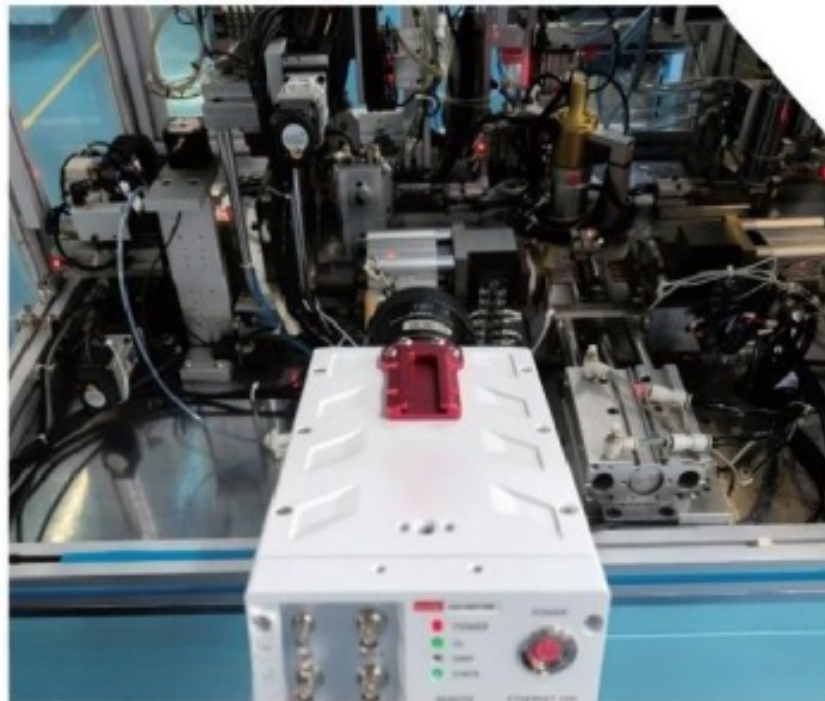
Discharge



2D flow field of aero-engine structure



Mechanical Motion



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

Model	Cooling Method	Recording Duration at Full Frame (1280x1024, 320GB/10bit)	Frame Rate at 1280x256 Resolution	ROI Maximum Frame Rate (1280x16 Resolution)
VL-Apex 25G	Fan, Switchable	6.39s	96000fps	1000000fps
VL-Surge 20G	Fan	8.49s	78000fps	645000fps
VL-Peak 16G	Fan	11.11s	62000fps	570000fps

 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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