

VL FS-620 3-in-1 Drone Payload

An all-in-one, 6-channel (4 Multispectral + 1 RGB + 1 Thermal) electro-optical payload designed for high-end flight platforms.

- 3-in-1 Multi-Dimensional Perception (Multispectral + RGB + Thermal)
- Hardware-Level Precision Synchronization
- Plug-and-Play, Deep DJI Ecosystem Integration
- End-to-End Research-Grade Workflow



One Platform Many Possibilities

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Get a Quote



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Overview

Product Overview

The Venuslab FS-620 is a groundbreaking multi-modal airborne electro-optical system. Within an exceptionally compact gimbal structure, it ingeniously merges a 4-channel custom multispectral sensor array, an 11.9MP high-definition visible light (RGB) camera, and a Long-Wave Infrared (LWIR) thermal measurement module. This luxurious "3-in-1" configuration allows drones to build a multi-dimensional environmental model covering geometric morphology, optical reflectance, and thermodynamic distribution in a single flight mission.

Thanks to its rugged sapphire optical windows and excellent thermal management design, the FS-620 effortlessly adapts to various harsh field environments. From assessing the detailed growth and drought stress of field crops to monitoring illicit pipeline discharges in complex water bodies, the FS-620 provides system integrators and terminal research institutions with unparalleled data depth and operational efficiency.

Key Features

- 6-Channel Sensor Array: 4 Multispectral bands (Green, Red, Red Edge, NIR) + 11.9MP RGB + LWIR Thermal.
- Global Shutter for Multispectral: Ensures distortion-free, high-speed aerial mapping.
- Millisecond Synchronization: <100ms trigger delay across all sensors for perfect spatial data overlap.
- Direct Temperature Output: The LWIR thermal core captures and outputs radiometric temperature data.
- DJI Pilot Ready: Full parameter control and real-time viewing via DJI's native enterprise software.
- Massive Onboard Storage: Integrated 512GB SSD for uninterrupted, large-scale data collection.
- Ultra-Lightweight Integration: 1000g payload weight including the integrated 3-axis gimbal.

Typical Applications

- Advanced Precision Agriculture & Irrigation Management: Beyond conventional NDVI crop health calculations, combining thermal data allows for precise assessment of Water Stress, guiding highly refined variable-rate irrigation.
- Early Forestry Pest & Disease Scouting: RGB handles geometric texture archiving of the canopy, multispectral captures Red Edge mutations, and thermal monitors abnormal canopy temperature rises, achieving ultra-early three-dimensional diagnosis of pests and diseases.
- Water Resources & Ecological Environment Monitoring: Multispectral is used for eutrophication and cyanobacteria distribution inversion, while the thermal channel precisely locates illicit discharge pipes and thermal anomalies from industrial wastewater.
- Scientific Research & Academic Mapping: Provides agricultural and forestry universities and research institutes with a highly integrated data collection tool, completely eliminating the pain points of mounting multiple separate devices and post-aligning disparate data sets.

Specifications

Technical Specifications

Parameter	Specification Details
Sensor Array Configuration	4-Channel Multispectral + 1-Channel RGB + 1-Channel Thermal (LWIR)
Standard Spectral Bands	555nm (Green), 660nm (Red), 720nm (Red Edge), 840nm (NIR)
Thermal (LWIR) Specs	8µm ~ 14µm, supports direct temperature data output
Effective Pixels	Multispectral: 1.3 Mpx (per channel) RGB: 11.9 Mpx Thermal: 0.3 Mpx
Image Sensor Size	Multispectral: 1/2-inch RGB: 1/3-inch
Shutter Type	Multispectral: Global Shutter RGB: Rolling Shutter
Quantization Depth	Multispectral: 12-bit RGB: 8-bit
GSD (@ 120m altitude)	Multispectral: 9.6 cm RGB: 2.86 cm
Swath Width (@ 120m altitude)	Multispectral: 123m x 98m RGB: 109m x 88m

Optical Window Material	Sapphire optical glass window
Mounting & Power Interface	Standard X-Port
Control & Parameter Settings	Fully compatible with DJI Pilot
Data Storage	Built-in 512GB Solid State Drive (SSD)
Image Output Format	Multispectral: 16-bit raw TIFF (with GPS) RGB: 8-bit JPEG (with GPS) Thermal: 16-bit TIFF (with GPS)
Typical Power Consumption	43W
Dimensions	182mm x 169mm x 129mm (including gimbal)
Total Weight	1000g (including gimbal)

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	Total Weight	Typical Power Consumption	Mounting & Power Interface	Dimensions
VL-HS-620	1000g (including gimbal)	43W	Standard X-Port	182mm x 169mm x 129mm (including gimbal)

 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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