

INFRARED COMPONENT

PRODUCT BROCHURE

One-stop Optoelectronic System Solution Provider



WeChat

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To Empower Humans To
Perceive The World In More Dimensions



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Our Mission

To empower humans to perceive the world
in more dimensions



Our Vision

Become a global leader in the optoelectronics field



Our Values

Respect, Collaboration, Perseverance, Innovation

COMPANY INTRODUCTION

VOT (Vital Optics Technology Co., LTD) was listed on the Growth Enterprise Market of the Shenzhen Stock Exchange in July 2015, with the stock code: 300489.

VOT is a dedicated national high-tech enterprise specializing in optoelectronic technology, positioning us at the vanguard of innovation in this field. With comprehensive capabilities spanning the entire industry chain, we are capable of full-scale production from the growth of optoelectronic materials, chip design, key sensor manufacturing, to system integration. We offer a diverse range of products and solutions tailored to the needs of the global market: Infrared materials and components, MEMS and detectors, Customized core and lens assemblies, Multifunctional thermal imaging cameras, Tailored integrated optoelectronic systems and solutions. Our product applications span a diverse array of cutting-edge fields: Artificial Intelligence, Semiconductor technology, Advanced materials science, Renewable energy solutions, Medical diagnostics, Sophisticated scientific instruments, Large-scale research equipment, Night vision for outdoor applications, Industrial thermal measurement, Machine vision technology, Internet of Things devices, Environmental monitoring systems, Unmanned Aerial Vehicle payloads, Assisted driving technologies.

VOT's commitment to innovation and quality ensures that our products meet the rigorous demands of these industries, positioning us as a trusted partner for customers seeking advanced optoelectronic solutions.

Total Number of Employees **2000+** Ratio of R&D personnel **26%**



QUALIFICATIONS AND AWARDS

Led by a team of doctoral experts

Applied for **1164** patents

631 patents
Invention patents

498 patents
Utility model patents

35 patents
Design patents



- **ISO 9001:2015** Quality Management System Certificate
- **ISO 14001:2015** Environmental Management System Certificate
- **ISO 45001:2018** Occupational Health and Safety Management System Certificate

CORE TECHNOLOGY



- 01 All Industries**
Empower national security, smart cities, low-altitude economy and natural resources; drive industrial intelligent upgrading, unlock tech value in diverse scenarios, and co-build a new intelligent era.
- 02 Intelligent Platform**
With leading algorithms as core engine, build an evolvable, adaptable intelligent platform; continuously deliver innovation and supply "intelligent fuel" for industrial intelligent transformation.
- 03 Intelligent Perception**
Integrate diverse perception devices, cover infrared, laser, radio frequency and other multi-modal dimensions; enable comprehensive, real-time and accurate capture of the physical world, and serve as "acute nerves" for intelligent systems.
- 04 Independent Chips**
Leverage full-stack independent R&D (from MEMS sensors to Class I superlattice chips) to build Chinese chips' "core strength"; secure full hardware independence and create a safe, efficient perception fortress for the intelligent era.
- 05 Material Foundation**
Build on material innovation, break performance boundaries at the atomic level; lay a solid "performance foundation" for the entire industrial chain and endow tech innovation with differentiated competitiveness from the source.

APPLICAION FIELDS



COOLING SERIES

Cryocooler

VOT (Vital Optics Technology Co., Ltd) has built a R&D and manufacturing platform for low-temperature cryocooler and corresponding dewar technology, has mastered the relevant cryocooler capabilities, including simulation, design, and pilot productin, as well as mass production, environmental testing, life testing, and other capabilities. Rotary integral Stirling cryocooler, linear split Stirling cryocooler, and free piston cryocooler are among the products available. These products can provide cooling capacity of 65K-150K. It has been confirmed that the product's reliability and life have reached advanced level in the industry, allowing it to satisfy the needs of cooling and packaging in cooled infrared as well as similar application fields.

Rotary Integrated Cryocooler



RM05 Stirling Cooler

RM04 Stirling Cooler

RM02T Stirling Cooler

RM10 Stirling Cooler

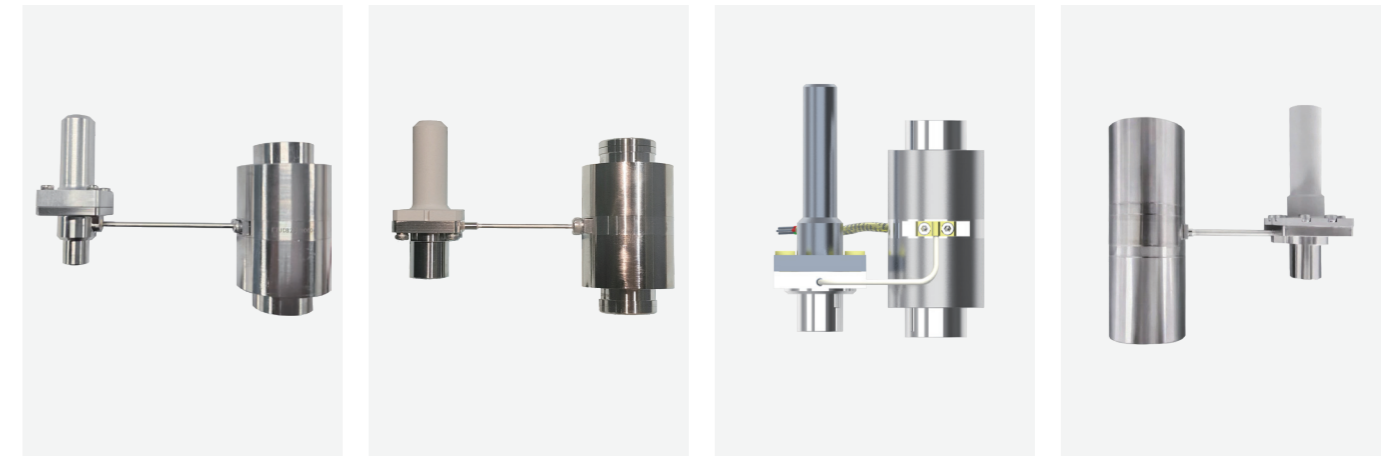
Product Advantages

- Compact structure and high efficiency
- Ideal cooler for 24/7 applications
- Standard interface for mechanical and electrical
- High temperature stability (<0.5K)

Product Specifications

Model Number	RM05 Stirling Cooler	RM04 Stirling Cooler	RM02T Stirling Cooler	RM10 Stirling Cooler
Input voltage	18~28VDC	8~16VDC	8~16VDC	18V~28V
Cooling power	≥550mW@77K@23°C	≥400mW@77K@23°C	≥1000mW@150K@23°C	≥800mW@77K@70°C
Cooldown time	≤5min@250J@77K@23°C	≤4min30s@250J@77K@23°C	≤2min@150J@150K@23°C	≤5min@500J@77K@23°C
Maximum Input Power	18W	18W	12W	36W
Steady Input Power	≤7W@220mW@77K@23°C	≤5W@130mW@77K@23°C	≤2.5W@150mW@150K@23°C	≤15W@550mW@77K@23°C
Weight	≤450g	≤290g	≤150g	≤580g
Maximum size (mm)	116x58.5x71	99.5x46.5x66.5	72x42x42	116x57x78
Operating temperature	-55°C~71°C	-55°C~71°C	-55°C~71°C	-55°C~71°C
MTTF	≥10000h	≥8000h	≥10000h	≥10000h
Cold Finger Size	Φ8mm	Φ6.3mm	Φ6.3mm	Φ9.3mm

Linear Splitied Cryocooler



LS05E Stirling Cooler

LS05F Stirling Cooler

LS07 Stirling Cooler

LS10 Stirling Cooler

Product Advantages

- Ideal cooler for 24/7 applications
- Small size and light weight
- High MTTF (≥20000h)
- Lower noise and vibration levels

Product Specifications

Model Number	LS05E Stirling Cooler	LS05F Stirling Cooler	LS07 Stirling Cooler	LS10 Stirling Cooler
Input voltage	8~16VDC	8~16VDC	24VDC	24VDC
Cooling power	≥1000mW@120K@23°C	≥1000mW@150K@23°C	≥700mW@80K@23°C	≥1000mW@77K@23°C
Cooldown time	≤3min@150J@120K@23°C	≤2min@150J@150K@23°C	≤3min@250J@80K@23°C	≤5min@500J@77K@23°C
Maximum Input Power	20W	15W	30W	45W
Steady Input Power	≤3.5W@150mW@120K@23°C	≤2.5W@150mW@150K@23°C	≤8.0W@200mW@80K@23°C	≤10.0W@250mW@77K@23°C
Weight	≤215g	≤210g	≤340g	≤700g
Maximum size (mm)	Compressor: Φ30×58 Expander: 21.8×52	Compressor: Φ28.5×58 Expander: 22×50	Compressor: Φ33.5×74.9 Expander: 31.9×85.4	Compressor: Φ42×115 Expander: 35×87
Operating temperature	-55°C~71°C	-55°C~71°C	-55°C~71°C	-55°C~71°C
MTTF	≥20000h	≥20000h	≥20000h	≥30000h
Cold Finger Size	Φ6.3mm	Φ6.3mm	Φ8mm	Φ9.3mm

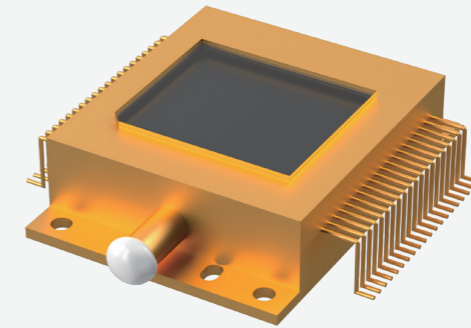
Cooled Infrared Detector

VOT (Vital Optics Technology Co., Ltd) has built production lines for MCT ,InSb and T2SL detectors.The detector's spectral range covers short waves, medium waves and long waves, and supports multiple resolutions including 320×256, 640×512 and 1280×1024.Among these, pixel pitch as small as 10μm can achieve higher spatial resolution, match optical lenses with shorter focal lengths, while maintaining the same detecting distance.

VOT (Vital Optics Technology Co., Ltd) can realize the large-scale production of domestic infrared detector components, and master the complete set of technologies of element purification, substrate, epitaxy, chip, circuit, cryo-cooler, packaging and testing for the cooled infrared detectors. The company also has the industrial production capacity of various types of MWIR cooled detectors, which can achieve larger field of view, longer detecting distance and smaller size of systems.




The various types of infrared detector components can be applied to a variety of commercial infrared fields such as seaside detection, gas detection, industrial inspection and forest fire prevention.

InGaAs Short Wave Infrared Detector



VS0615I

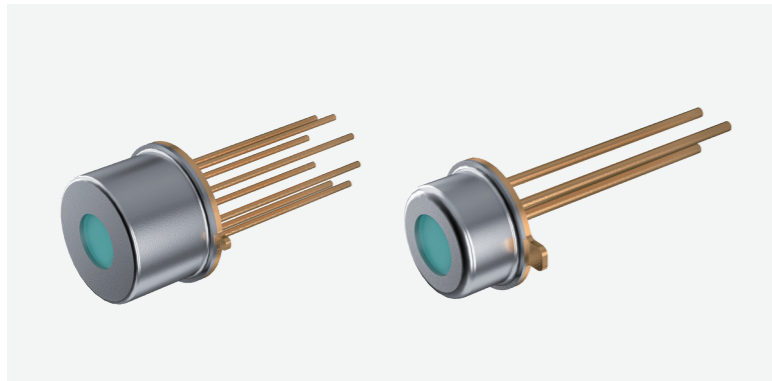
Product Advantages

-  Work at room temperature
-  High sensitivity
-  High detection rate, good uniformity

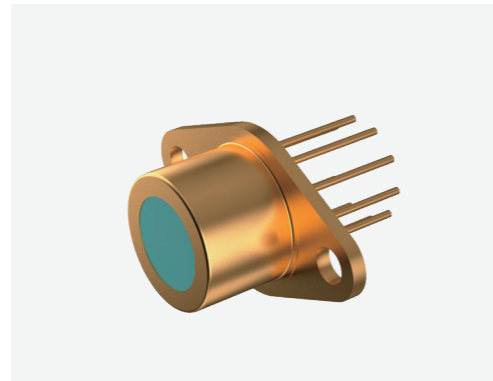
Product Specifications

Model Number	VS0615I
Array size	640×512
Pixel size	15μm
Spectral range	0.9~1.7μm
Quantum efficiency	≥70%
Corresponding inhomogeneity	< 6%
Effective pixel rate	≥99.5%
Refrigeration mode	Secondary TEC refrigeration
Dark current	≤10nA/cm ² @20°C
Frequency frame	The maximum value is ≥300Hz@8 channels
Operating temperature	-40°C~70°C
Overall dimension	32mm×23.5mm×7.5mm
Encapsulation form	40-pin metal vacuum package
weight	≤20g

Infrared Detector



Photovoltaic Infrared Detector



Photoconductive Infrared Detector

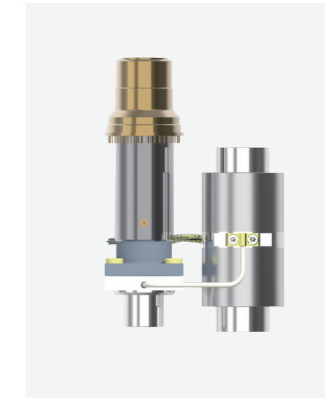
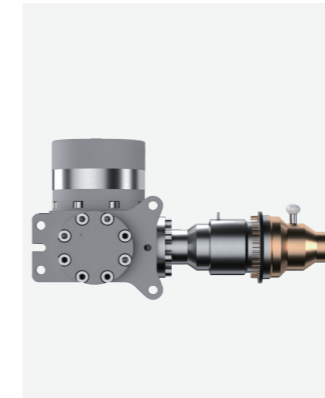
Product Advantages

- TO compact package
- high sensitivity
- RoHS-compliant

Product Specifications

Model Number	Photovoltaic Infrared Detector		Photoconductive Infrared Detector
Active element material	InAsSb		HgCdTe
Active area	1mm*1mm		0.25mm*0.25mm
Spectral range	2μm ~ 5μm	-	2μm ~ 5μm
Cut-off wavelength	5μm (10%)	-	5μm (50%)
Peak wavelength	4.15μm	3.3/3.9/4.26μm(any available)	-
Peak current responsivity	> 1 A/W	> 0.5 A/W	> 1E4 V/W
Peak detectivity	> 2E9 cm · Hz ^{1/2} /W	> 1E9 cm · Hz ^{1/2} /W	> 1E10 cm · Hz ^{1/2} /W
Working condition	bias voltage:0V	bias voltage: 0V	bias current: 1mA
Package	TO39	TO46	TO66
Window	Si(AR)	Si(AR)	Sapphire (AR)
Field of view	60°	90°	130°
Cooling	one-stage TE cooling	-	three-stage TE cooling
Working temperature	253K	room temperature	213~220K

MCT Cooled Infrared Detector



VM0615M

Product Advantages

- MCT focal plane array
- High performance and high reliability
- The operating temperature of the chip is 80-100K
- Universal interface
- Mass production for better consistency

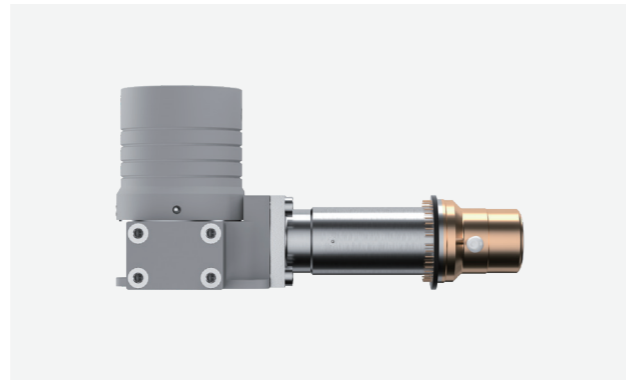
Product Specifications

Model Number	VM0615M			
Array	640×512			
Pixel Pitch	15μm			
Detector spectral response	3.7μm ~ 4.8μm			
Array Operability	≥99.5%			
FPA Operating Temperature	80K		80K	100K
Non-uniformity	≤7%		≤7%	≤7%
Cryocooler	4	5.5	4	4
F#(Upon Request)	≤17mk	≤20mk	≤17mk	≤20mk
NETD	RM05	RM04	LS07	LS05E
Cooldown Time	≤7min@23°C	≤5min@23°C	≤5min@23°C	≤5min@23°C
Steady Input Power	≤8W@23°C	≤6W@23°C	≤8W@23°C	≤6W@23°C
Weight	≤570g	≤380g	≤460g	≤260g
Size(mm)	145×58.5×71	120.2×46.5×66.5	Compressor: Φ33.5×74.9 Dewar: 31.9×110	Compressor: Φ30×58 Dewar: Φ30×71.4

MCT Cooled Infrared Detector




VM1215M



VM1210M

Product Advantages

-  Million level pixels
-  High performance and high reliability
-  Universal interface
-  Mass production for better consistency

Product Specifications

Model Number	VM1215M	VM1210M
Array	1280x1024	1280x1024
Pixel Pitch	15μm	10μm
Detector spectral response	3.7μm~4.8μm	3.7μm~4.8μm
Array Operability	≥99.5%	≥99.5%
FPA Operating Temperature	80K	80K
Non-uniformity	≤8%	≤8%
Cryocooler	RM10	RM05
F#(Upon Request)	4	4
NETD	≤19mK	≤25mK
Cooldown Time	≤7min@23°C	≤7.5min@23°C
Steady Input Power	≤9W@23°C	≤9W@23°C
Weight	≤700g	≤570g
Size(mm)	151x77.5x56.5	145x58.5x71

InSb Cooled Infrared Detector






VM0330A



VM0615A

Product Advantages

-  InSb focal plane array
-  Voc gas detection application
-  Universal interface
-  High performance and high reliability
-  Mass production for better consistency

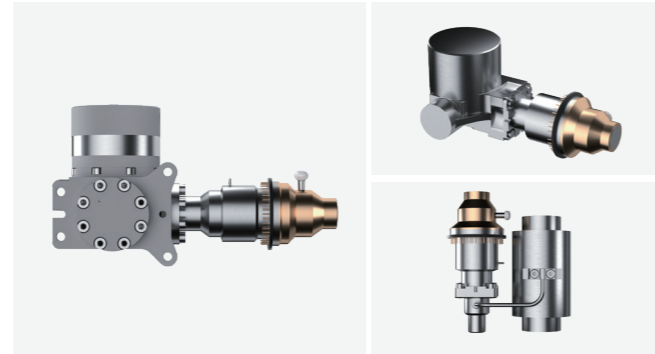
Product Specifications

Model Number	VM0330A	VM0615A	
Array	320×256	640×512	
Pixel Pitch	30μm	15μm	
Detector spectral response	3.2μm~3.5μm	3.7μm~4.8μm	
Array Operability	≥99.5%	≥99.5%	
FPA Operating Temperature	80K	80K	
Non-uniformity	≤7%	≤7%	
Cryocooler	RM05	RM05	RM04
F#(Upon Request)	1.5	4	5.5
NETD	≤17mk	≤17mk	≤20mk
Cooldown Time	≤7min@23°C	≤7min@23°C	≤5min@23°C
Steady Input Power	≤8W@23°C	≤8W@23°C	≤6W@23°C
Weight	≤570g	≤570g	≤380g
Size(mm)	142x58.5x71	145x58.5x71	120.2x46.5x66.5

T2SL Cooled Infrared Detector



Cooled Long Wave Infrared Detector-VL0615S



Cooled High-temperature Red Medium Wave Infrared Detector-VM0615R

Product Advantages

- Long wave T2SL materials
- Universal interface
- High uniformity and stability
- Mass production for better consistency

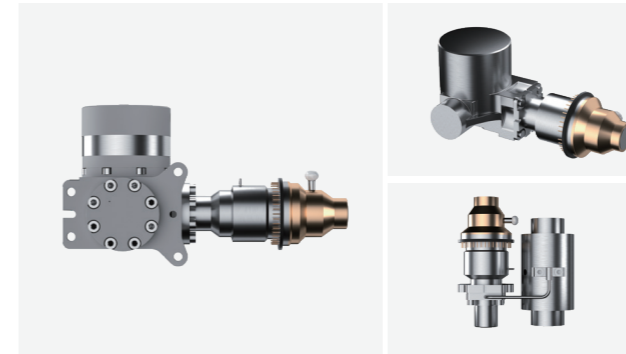
Product Advantages

- High uniformity and stability
- Long lifespan and low power consumption
- Operating temperature 120K
- Small size and light weight

Product Specifications

Model Number	VL0615S	VM0615R		
Array	640x512	640x512		
Pixel Pitch	15μm	15μm		
Detector spectral response	7.7μm~9.5μm 7.7μm~10.5μm	3.7μm~4.8μm		
Array Operability	≥99%	≥99.5%		
FPA Operating Temperature	80K	120K		
Non-uniformity	≤7%	≤8%		
F#(Upon Request)	2	4		
NETD	≤35mK	640x512 mode: ≤20mK 320x256 binning mode: ≤12mK		
Cryocooler	RM05	RM04	RM02T	LS05E/LS05F
Cooldown Time	≤7min@23°C	≤4min@23°C	≤4min@23°C	≤4min@23°C
Steady Input Power	≤8W@23°C	≤4.5W@23°C	≤5W@23°C	≤4.5W@23°C
Weight	≤570g	≤380g	≤220g	≤280g
Size(mm)	145x58.5x71	120.2x46.5x66.5	91.4x42x42	Compressor: Φ30x58 Dewar: Φ30x71.2

InAsSb Cooled Infrared Detector



Cooled High-temperature Blue Medium Wave Infrared Detector - VM0615B



High Operating Temperature Gas Detector - VM0615B

Product Advantages

- High uniformity and stability
- FPA Operating temperature at 150K
- High MTTF and low input power
- Small size and light weight

Product Specifications

Model Number	Infrared Detector-VM0615B			Gas Detector-VM0615B		
Array	640x512			640x512		
Pixel Pitch	15μm			15μm		
Detector spectral response	3.6μm~4.2μm			3.2μm~3.5μm		
Array Operability	≥99.5%			≥99.5%		
FPA Operating Temperature	150K			120K		
Non-uniformity	≤8%			≤10%		
F#(Upon Request)	4			1.2		
NETD	640x512 mode: ≤30mK 320x256 binning mode: ≤15mK			640x512模式: ≤15mK 320x256binning模式: ≤10mK		
Cryocooler	RM04	RM02T	LS05F	RM04	RM02T	LS05F
Cooldown Time	≤3min@23°C	≤3.5min@23°C	≤3min@23°C	≤3min@23°C	≤4min@23°C	≤3.5min@23°C
Steady Input Power	≤4W@23°C	≤3.5W@23°C	≤3W@23°C	≤4W@23°C	≤5W@23°C	≤4.5W@23°C
Weight	≤380g	≤220g	≤280g	≤380g	≤220g	≤280g
Size(mm)	120.2x46.5x66.5	91.4x42x42	Compressor: Φ28.5x58 Dewar: Φ34.2x69.3	120.2x46.5x66.5	91.3x42x42	Compressor: Φ28.5x58 Dewar: Φ34.2x69.3

Cooled Infrared Camera Core

Cooled Infrared Camera Core is a high-performance thermal imaging component independently developed by VOT (Vital Optics Technology Co., Ltd). It has the advantages of small size, light weight and low input power, and can be used in security monitoring, forest fire prevention, gas detection, industrial inspection and other fields.

The product integrates a variety of image processing algorithms, suitable for different weather and scenes, providing rich details and superior image effects, and can provide data interface and SDK development kit to facilitate users' secondary development.

SWIR camera core



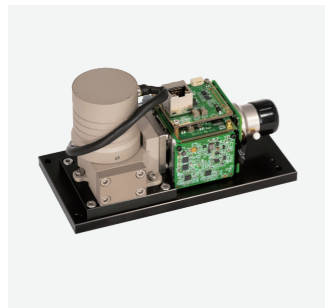
Te615D

Product Advantages

- It has the characteristics of high sensitivity, small size, light weight, low power consumption, and rich interfaces. Widely used in fields such as moisture detection, product detection and classification, foreign object detection, astronomical imaging, biomedicine, industrial monitoring, machine vision, etc.

Performance	
Array	640×512
Pixel Pitch	15μm
Detector	InGaAs
Frame Rate	25/50/100Hz
Spectral Band	0.9~1.7μm
Array Operability	≥99.8%
Dark current	≤10nA/cm ² @20°C
Exposure Mode	Auto/Manual
Digital video	Raw14bit
Refrigeration mode	Secondary TEC refrigeration
Image processing	
Image processing	NUC, image enhancement, digital denoising, automatic exposure, mixed dimming
Electrical characteristic	
Supply voltage	9-26VDC
Input power	≤5w@25°C(Excluding TEC)
Digital video	Cameralink/Ethernet
Communication interface	RS422
Optical interface	C-Mount
Physical property	
Weight	≤180g (Excluding lens)
Size	≤65.1×50×50mm
Environmental adaptability	
Operating temperature	-45°C~+65°C
Storage temperature	-50°C~+70°C

Medium Wave Cooled Infrared Camera Core



Te0615A



Te0615B

Product Advantages

- Equipped with high-performance signal processing circuits.
- CameraLink or Gigabit 14 bit RAW data output.
- Provide SDK development package, which is simple to develop and easy to integrate.
- Integrated structural design, with external dimensions consistent with the detector.
- Autonomous and controllable supply chain with guaranteed delivery.

Performance

Array	640×512	
Pixel Pitch	15μm	
FPA spectral band	3.7μm~4.8μm	
F#	4	
Cryocooler	RM05	RM04
Cooldown time	≤7min@23°C	≤6min@23°C
Typical NETD	≤20mk	≤25mK

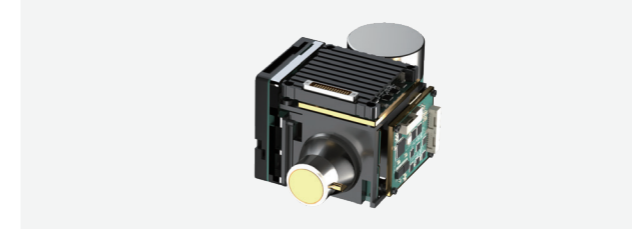
Image Processing

Max. full frame rate	100Hz	
Dimming	Linear/histogram	
Image algorithm	NUC	

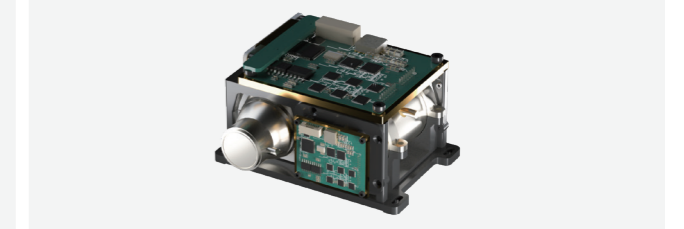
Electrical Characteristic

Standard external interface	Gigabit network/ CameraLink/PAL	Gigabit network/CameraLink/PAL
Digital video	14bit RAW	14bit RAW
Communication interface	RS422	RS422
Supply voltage	DC-24V	DC-12V
Operating temperature	-40°C~60°C	-40°C~60°C
Size	172.5mm×94mm×94.3mm	115mm×55mm×72mm
Weight	≤1.1Kg	≤480g
Power Consumption	Max≤19W@23°C; Regular≤12W@23°C	Max≤19W@23°C; Regular≤10W@23°C

HOT Miniaturized Cooled Camera Core



Te0615C



Te0615E

Product Advantages

- Product integration, adaptable to multiple lenses
- Localization of components, providing localized solutions
- Suitable for multiple scenarios, security monitoring, forest fire prevention, infrared non-destructive testing, etc
- Adopting self-developed image processing algorithms to highlight image details more prominently
- The device is designed to be miniaturized, with light weight and low power consumption

Performance

Array	640×512	
Pixel Pitch	15μm	
FPA spectral band	3.7μm~4.8μm	
F#	4	
Cryocooler	RM02T	LS05E
Cooldown time	≤4min@23°C	≤4min@23°C
Typical NETD	640×512 mode: ≤25mK	640×512 mode: ≤25mK

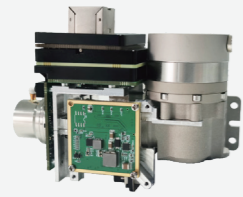
Image Processing

Max. full frame rate	25Hz	50Hz
Dimming	Linear/histogram	Linear/histogram
Image algorithm	NUC	NUC

Electrical Characteristic

Standard external interface	Gigabit network/CameraLink	CameraLink/PAL
Digital video	14bit RAW	14/8bit RAW
Communication interface	RS422	RS422
Supply voltage	DC-12V	DC-12V
Operating temperature	-40°C~60°C	-40°C~60°C
Size	97mm×50mm×42mm	78.5mm×89mm×51mm
Weight	≤360g	≤380g
Power Consumption	Max≤19W@23°C; Regular≤8W@23°C	Max≤34W@23°C; Regular≤10W@23°C

High-Temperature Medium Wave Gas Detection Camera Core



Te0615B-G



Te0615F-G

Product Advantages

- Equipped with high-performance signal processing circuits
- Multiple data output methods are available for selection: Gigabit network/CameraLink/PAL
- Provide SDK development package, which is simple to develop and easy to integrate
- Professional gas enhancement image algorithm to identify weak gas leaks
- Autonomous and controllable supply chain with guaranteed delivery

Performance		
Array	640×512	
Pixel Pitch	15μm	
FPA spectral band	3.2μm ~ 3.5μm	
F#	1.2	
Cryocooler	RM04	LS05F
Cooldown time	≤4min@23°C	≤4min@23°C
Typical NETD	640×512 mode: ≤20mK 320×256binning mode: ≤15mK	640×512 mode: ≤20mK 320×256binning mode: ≤15mK
Gas detection type	methane, ethane, propane, butane, pentane, hexane, heptane, octane, ethylene, propylene, isoprene, methanol, ethanol, butanone, benzene, toluene, xylene, ethylbenzene, etc	
Image Processing		
Max. full frame rate	640×512 mode: 90Hz 320×256binning mode: 200Hz	640×512 mode: 100Hz 320×256binning mode: 200Hz
Dimming	Linear/histogram	Linear/histogram
Image algorithm	NUC	NUC
Electrical Characteristic		
Standard external interface	Gigabit network/CameraLink/PAL	PAL/Cameralink/DVP
Digital video	14bit RAW	14/8bit RAW
Communication interface	RS422	RS422
Supply voltage	DC-12V	DC-12V
Operating temperature	-40°C~60°C	-40°C~60°C
Size	115mm×55mm×72mm	93.8mm×75.4mm×60.9mm
Weight	≤460g	≤440g
Input power	Max≤19W@23°C; Regular≤8W@23°C	Max≤25W@23°C; Regular≤7W@23°C

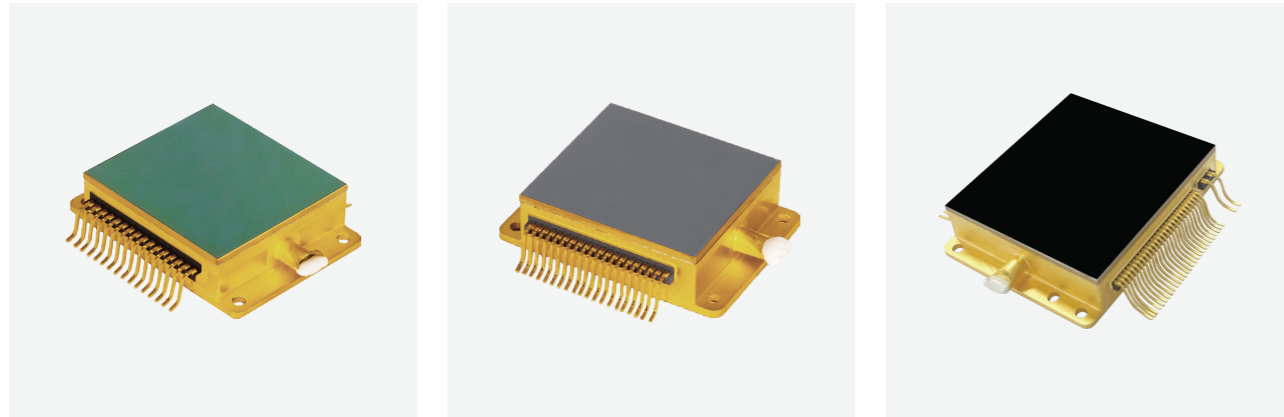
UNCOOLED SERIES

Uncooled Infrared Detector

VOT has established an 8-inch silicon-based MEMS infrared detector production line, breaking through the chip technology of infrared thermal imaging, and mastering MEMS chip design technology, manufacturing process technology, and metal, ceramic and wafer-level encapsulation technology.

The uncooled infrared detectors feature small size, light weight, low cost, fast response speed, and wide spectral range. They are widely used in fields such as thermal imaging, fire alarms, industrial inspection, and security monitoring.

Metal Packaging Infrared Detector



VL0617VM

VL0612VM

VL1212VM

Product Advantages



High sensitivity and good reliability

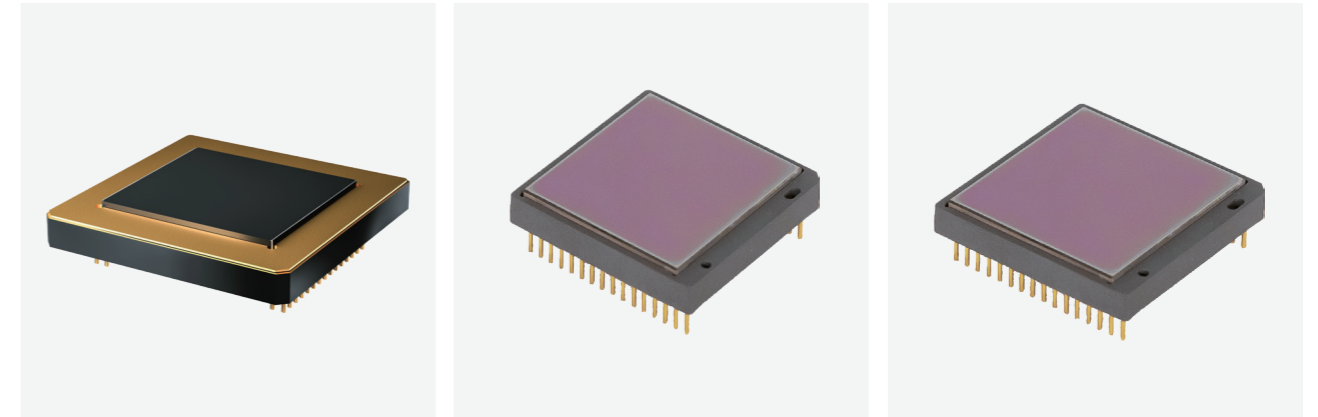


Suitable for complex environmental scenarios

Product Specifications

Detector	VL0617VM	VL0612VM	VL1212VM
Array	640×512	640×512	1280×1024
FPA Spectral Band	LWIR, 8μm~14μm	LWIR, 8μm~14μm	LWIR, 8μm~14μm
NETD	≤30 mk (@f/1.0, 50Hz, 300K)	≤40 mk (@f/1.0, 50Hz, 300K)	≤40 mk (@f/1.0, 25Hz, 300K)
Frame Rate	50Hz	50Hz	25Hz
Package Dimensions	23.5×32×7.7mm ³ (Excluding Pin Dimensions)	23.5×32×7.7mm ³ (Excluding Pin Dimensions)	40.5×30×8mm ³ (Excluding Pin Dimensions)
Output Signal	Analog Output	Digital Output	Digital Output
Read out	Row-by-Row Readout	Row-by-Row Readout	Row-by-Row Readout
Pixel Pitch	17μm	12μm	12μm
Power Consumption	≤350mW (@50Hz, 300K, Excluding TEC)	≤180mW (@50Hz, 300K, Excluding TECC)	≤500mW (@25Hz, 300K, Excluding TEC)
Packaging Form	32pin Metal Vacuum Packaging	40pin Metal Vacuum Packaging	60pin Metal Vacuum Packaging
Weight	≤20g	≤25g	≤45g

Ceramic Packaging Detector



VL1212VC

VL0612VC

VL0312VC

Product Advantages



Features a non-TEC cooling mode



Compact size, high reliability, and low power consumption

Product Specifications

Detector	VL1212VC	VL0612VC	VL0312VC
Array	1280×1024	640×512	384×288
FPA Spectral Band	LWIR, 8μm~14μm	LWIR, 8μm~14μm	LWIR, 8μm~14μm
NETD	≤40 mk (@25Hz, 300K)	≤40mk (@f/1.0, 50Hz, 300K)	≤40 mk (@f/1.0, 50Hz, 300K)
Frame Rate	25Hz	50Hz	50Hz
Package Dimensions	28.5×28.5×4.1mm ³ (Excluding Pin Dimensions)	22×22×4.68mm ³ (Excluding Pin Dimensions)	22×22×4.68mm ³ (Excluding Pin Dimensions)
Output Signal	Digital Output	Digital Output	Digital Output
Read out	Row-by-Row Readout	Row-by-Row Readout	Row-by-Row Readout
Pixel Pitch	12μm	12μm	12μm
Power Consumption	≤500mW (@25Hz, 300K)	≤180mW (@50Hz, 300K)	≤180mW (@50Hz, 300K)
Packaging Form	60pin Ceramic Vacuum Packaging	32pin Ceramic Vacuum Packaging	32pin Ceramic Vacuum Packaging
Weight	≤11.2g	≤5.5g	≤5.5g

Wafer Packaging Detector




VL0612VM



VL0312VW

Product Advantages

 Lightweight, economical, low power consumption

 Suitable for mini-module applications

Product Specifications

Detector	VL0612VM	VL0312VW
Array	640×512	384×288
FPA Spectral Band	LWIR,8μm~14μm	LWIR,8μm~14μm
NETD	≤40 mk (@f/1.0,50Hz,300K)	≤40 mk (@f/1.0,50Hz,300K)
Frame Rate	50Hz	50Hz
Package Dimensions	12.95×12.52×1.45mm ³	10.18×9.61×1.45mm ³
Output Signal	Digital Output	Digital Output
Read out	Row-by-Row Readout	Row-by-Row Readout
Pixel Pitch	12μm	12μm
Power Consumption	≤180mW (@50Hz,300K)	≤180mW (@50Hz,300K)
Packaging Form	44pin Wafer Vacuum Packaging	44pin Wafer Vacuum Packaging
Weight	≤0.5g	≤0.3g

UNCOOLED SERIES

Uncooled Infrared camera core

The uncooled camera core is equipped with 384x288 or 640x512 infrared detector, high-performance signal processing circuits, and proprietary image processing algorithms of VOT, offering high image quality with sharp edges, a sense of depth, fast frame rates, and high temperature measurement accuracy.

The uncooled camera core has the advantages of small size, low power consumption, high cost-performance ratio, and customization capabilities. It is suitable for the development and integration of infrared thermal imaging equipment or systems in various fields, as well as the integration of various imaging systems and optoelectronic systems. It can be applied in the field of industrial process or quality control systems, security monitoring, vehicle night vision, the Internet of Things, drones, and Industry 4.0 etc.

UCC3 Series Camera Core

UCC3843/UCC6403

The UCC3 series camera core is equipped with 384×288/640×512 infrared detector, high-performance signal processing circuits, and proprietary image processing algorithms of VOT, offering high image quality with sharp edges, a sense of depth, fast frame rates, and high temperature measurement accuracy.



Product Advantages

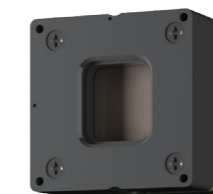
- Domestic production.
- High sensitivity for clear and stable imaging quality.
- Compact size, lightweight, and low power consumption.
- Highly integrated for easy secondary development.
- Wide temperature range with high precision, easily adapting to various scenes.
- High frame rate for smooth detection of fast-moving targets.

Product Specifications

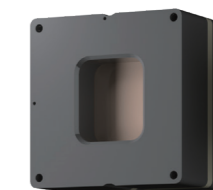
Detector Performance		Image Function	
Detector Type	VOx	Brightness Contrast	Auto/Manual
Resolution	640x512 384x288	Polarity	Whitehot, Blackhot
Pixel Pitch	12μm	Color Palette	Iron Red, Anti-Iron Red, Rainbow, Feather Rainbow
NETD	≤40mK	Digital Zoom	X1, X2, X4
Frame Frequency	≤60Hz	Image Processing	Non-uniformity Correction, Digital Filtering for Noise Reduction, Digital Detail Enhancement
Spectral Band	8~14μm	Image Mirroring	Horizontal (Left/Right) or Vertical (Up/Down)
Lens Options		Environmental Parameters	
Lens	25mm (standard) 6/9/13/19/35/50/75mm (selectable)	Operation Temperature	-20°C~60°C
Field of View	6mm	65.2°x54.2°	42.0°x32.1°
	9mm	46.2°x37.7°	28.7°x21.7°
	13mm	32.9°x26.6°	20.1°x15.1°
	19mm	22.9°x18.4°	13.8°x10.4°
	25mm	17.5°x14.0°	10.5°x7.99°
	35mm	12.5°x10.0°	7.5°x5.7°
	50mm	8.8°x7.0°	5.3°x4.0°
75mm	5.9°x4.7°	3.5°x2.6°	
		Storage Temperature	-45°C~85°C
		Humidness	5~95%, Non-condensing
		Vibrator	6.06g, Random Vibration, All Axial Directions
		Reliability	80g,4ms,Back Peak Sawtooth,3 Axes,6 Directions
Interface		Power Supply	
Video Output	CVBS, USB (UVC) BT.656	Temperature Measuring Function	-20°C~150°C 140°C~600°C
Communication Method	RS-232	Temperature Measuring Accuracy	±2°C or 2% of the reading
		Physical Parameter	Dimensions: 26×26×21.1mm (excluding lens and connector)
			Weight: ≤23g (excluding lens and connector)
		Power Supply Protection	Overvoltage Protection, Reverse Input Protection, High Voltage Surge Suppression
		Power Input	DC 5~12V
		Power Wastage	≤ 1W

Fireye Series Camera Core

The camera core, with its outstanding performance, stable structure, and flexible configurability, is suitable for the development and integration of infrared thermal imaging equipment or systems in various fields, as well as the integration of various imaging complete machines and optoelectronic systems. It can be applied to vehicle night vision, security monitoring, outdoor sports, fire rescue, law enforcement search, rescue and other fields.



shutter



shutterless

Product Advantages

- High sensitivity for clear and stable imaging quality.
- High-performance design with a stable structure, adaptable to various harsh environments.
- Highly integrated for easy secondary development.
- High frame rate ensures smooth observation of high-speed moving targets without lag.
- Compact size, lightweight, and low power consumption.
- Wide temperature range with high precision, easily adapting to various scenes.
- High frame rate for smooth detection of fast-moving targets.

Product Specifications

Detector Performance		Image Function	
Detector Type	Uncooled VOx Microbolometer	Image Correction	Shutter/Shutterless (Selectable)
Resolution	384x288 640x512	Brightness Contrast Adjustment	Auto/Manual
Pixel Size	12μm	Digital Zoom	1-8x
NETD	≤50mK, @F1.0, 300K	Reticle	Show/Hide/Move
Frame Frequency	50Hz	Color Palette	Whitehot/Blackhot/Iron/Rainbow
Spectral Band	8~14μm	Image Processing	Non-uniformity Correction, Digital Filtering for Noise Reduction, Digital Detail Enhancement.
Lens Options (Selectable)		Environmental Parameters	
Lens	9.1/13/19/25/35/50mm, F1.0	Vibrator	6.06g,Random Vibration, All Axial Directions
Focusing Method	Manual	Reliability	200g, 4ms, Back Peak Sawtooth, 3 Axes, 6 Directions
Field of View	9.1mm	28.9°x21.62°	49.1°x38.74°
	13mm	20.1°x15.14°	32.91°x26.59°
	19mm	13.83°x10.39°	22.85°x18.37°
	25mm	10.53°x7.91°	17.46°x14.01°
	35mm	7.53°x5.65°	12.52°x10.03°
	50mm	5.28°x3.96°	8.78°x7.03°
		Humidness	5~95%, Non-condensing
		Operation Temperature	-20°C~+55°C
		Storage Temperature Range	-55°C~+70°C
Interface		Power Supply	
Analog Video	CVBS	Power Supply Protection	Supports Over-voltage, Under-voltage and Reverse Connection Protection
Digital Video	BT.656/LVDS/MIPI/Cameralink/SDI/ETH (Selectable)	Power Input	DC 3.8~5.5V
Communication Interface	UART/RS232	Power Wastage	≤1W
Physical Parameter		Weight	shutter≤22.3g/shutterless≤20g (excluding lens)
		Dimensions	25mm×25mm×18.5mm (excluding lens)