

Integrated Products Selection Guide

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Official Website



LinkedIn Official Account

Raytron OEM

Raytron OEM a wholly-owned subsidiary of Raytron Technology Co., Ltd., is a leader in infrared thermal imaging. The company has mastered the core technologies and production processes across the entire uncooled infrared imaging industry chain, including integrated circuit design, MEMS sensor design and manufacturing, packaging and testing, infrared core image algorithm development, and system integration. With a solid foundation of technical expertise, we continue to push the boundaries of small-pixel infrared imaging technology and drive innovation. In 2024, we launched the world's first 6μm infrared thermal imaging detector.

We are dedicated to the research, development, production, and sales of infrared thermal imaging, offering an extensive product portfolio that covering short, medium and long-wave infrared. Our products include infrared detectors, infrared core modules, photon-type infrared devices, gas imaging modules, laser sensing modules, as well as mature, industry-ready solutions.

With extensive integration experience, we are able to tailor solutions to diverse infrared application scenarios. Our products are widely used in outdoor night vision, industrial temperature measurement, civilian drones, security surveillance, gas detection, grain sorting, photovoltaic inspection, space communications, semiconductor testing, laser ranging, and more.

Raytron OEM is always committed to leading innovation in infrared thermal imaging technology, upholding the mission of "To Create Incremental Value for Customers with Technological Advancements" and enabling broader application of infrared imaging across industries.

1860+
R&D Personnel

52%
Percentage of
R&D Personnel

600+
Master's and
PhD Holders

9
R&D Centers

18%
Proportion of
R&D Investment

3800+
Intellectual
Property

*Data from Raytron Technology Group, as of June 2025

WHOLE INDUSTRY CHAIN

Advantages of Thermal Imaging Integration

► Whole industry chain

Extensive product portfolio covering short, medium and long-wave infrared ranges.

► Strong R&D strength, leading chip R&D platform

We have a team of senior experts specializing in integrated circuit design, MEMS infrared sensor chips, infrared detectors, core modules, infrared image processing algorithms, and advanced control algorithms. Our capabilities include an industry-leading full-process design platform for uncooled infrared chips and dedicated ASIC processors, a comprehensive performance testing platform, and CNAS-accredited laboratory facilities.

► Infrared detector manufacturer

With our self-built production lines, we have achieved mass production of uncooled infrared detector chips and core modules, ranging from 256×192 to 1920×1080 area arrays, with pixel sizes from $35 \mu\text{m}$ down to $8 \mu\text{m}$.

► Excellent product performance, mature integration solution

The uncooled infrared core modules feature self-developed high-sensitivity detectors and industry-leading infrared image processing algorithms, delivering crystal-clear imaging with refined picture quality and rich details. The modules provide a wide temperature measurement range and high accuracy. A rich set of general-purpose interfaces enables seamless integration with diverse intelligent processing platforms and hardware systems, ensuring rapid deployment. Backed by mature project solutions, the modules have already supported numerous customer integrations and development projects.

► Quality assurance, CNAS certification/reliability test platform

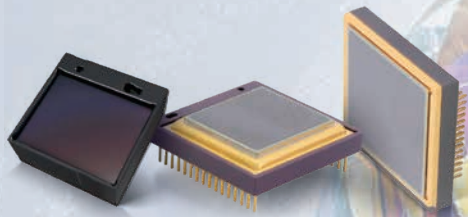
Comprehensive management system certification ensures strict oversight of the entire production process. This is supported by real-time tracking through hundreds of monitoring points and multiple inspection procedures before products leave the factory.

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Product Matrix

► Uncooled Long-Wave Infrared Sensors

- Area array: 256×192/384×288/640×512/1280×1024
- Pixel pitch: 12μm
- Response band: 8-14μm
- Packaging format: wafer-level packaging, super wafer-level packaging (SWLP), ceramic packaging, metal packaging



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► Uncooled Long-Wave Infrared Core Modules

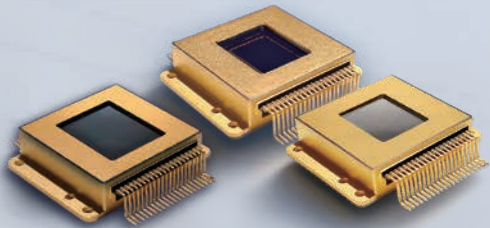
- Resolution: 160×120/256×192/384×288/640×512/1280×1024/1920×1280
- Detector: self-developed infrared detector, pixel pitch 10 μm/12 μm
- Self-developed image processing chip
- Temperature measurement: multiple modules support temperature measurement
- Integration: multiple lenses, multiple interfaces, support secondary development



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► Short-Wave Infrared Detectors

- Photosensitive material: InGaAs
- Including: area array detector, linear array detector
- Response band: 0.9 - 1.7 (+0.05)μm
- Pixel pitch: 10μm/12.5μm/15μm/25μm
- Resolution: 640×512/1280×1024/512×2/1024×1
- Quantum efficiency: >70% (1.0μm - 1.6μm)
- Effective pixel rate: ≥99.8%



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Short-Wave Infrared Cameras ◀



- Including: area array camera, line scan camera
- Resolution: 640×512/1024×1
- Pixel pitch: 12.5μm/15μm
- Interface: USB 3.0, CameraLink, GigE, Ethernet

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Optical Gas Imaging (OGI) Detectors ◀



- Area array size: 320×256
- Pixel pitch: 30μm
- Response wavelength: 3.2±0.1μm-3.5±0.1μm;
3.8±0.1μm-4.1±0.1μm; 4.2±0.1μm-4.4±0.1μm;
4.5±0.1μm-4.7±0.1μm
- F-number: 1.2

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Cooled Infrared Core Modules ◀



- Detector: self-developed detector, pixel pitch: 15 μm
- Resolution: 640×512
- Integration: multiple lenses and multiple interfaces, capable of secondary development

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Cooled Gas Detection Core Modules ◀



- Detectable gas types: methane, ethane, propane, butane, isobutane, ethylene, propylene, butylene, methanol, and others.
- Resolution: 320×256
- Pixel pitch: 30μm
- Frame rate: 25Hz

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Laser Ranging Modules ◀



- Laser wavelength: 905nm, 1535nm
- Ultra-long range: 1.2km~15km optional
- SWaP: small size, light weight, low power consumption
- Class I eye-safety certification

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Leading Innovation in Uncooled Infrared Detector Technology



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Uncooled Infrared Sensors

Uncooled Infrared Sensors

Product Model

Sensor Technology

Response Band

Pixel Pitch

Resolution

NETD

Frame Rate

Thermal Time Constant

Digital Output Bits

Readout Mode

Mirroring

Non-Uniformity Correction

Power Consumption

Packaging Dimensions
(Excluding pin size)

Device Weight

Packaging Type

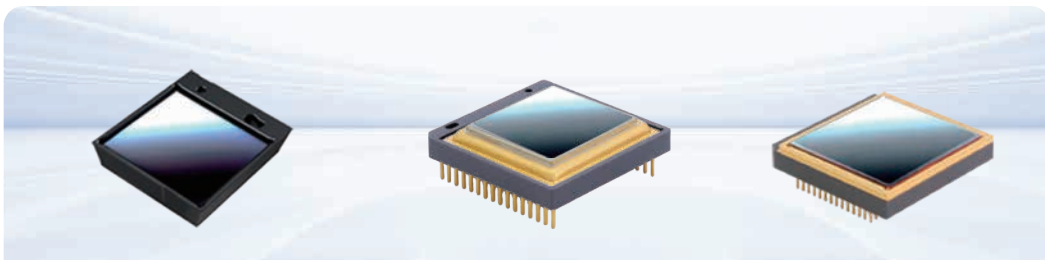
Output Polarity

Temperature Measuring
Range (f/1.0)

Operability Rate

Input Interface

Operating Temperature
Range

		
OHLE 3123	RTD6122C	RTDS123C
Vanadium oxide microbolometer		
8-14μm		
12μm		
384×288	640×512	1280×1024
<40mK(f/1.0,25Hz,300K)	<40mK (f/1.0,50Hz,300K)	<40mK(f/1.0,30Hz,300K)
≤60Hz		25Hz/30Hz/50Hz
<15ms	<12ms	<15ms
14bits		14bits(25Hz/30Hz) 、13bits(50Hz)
Progressive scan		
X- and Y-axis mirroring		
On-chip 9-bit non-uniformity correction	On-chip 6-bit non-uniformity correction	
<60mW(25Hz,300K)	<170mW(50Hz,300K)	<300mW(30Hz,300K)
10.4mm×10.4mm×4.3mm	22mm×22mm×4.58mm	27mm×27mm×4.6 mm
≤0.6g	≤6g	≤10g
36-Pin SWLP	32-Pin Ceramic	56-Pin Ceramic
Black hot	White hot	
-40°C~+600°C		
≥99.5%		
I2C interface (MODE0)	2-bits parallel input interface	6-bits parallel input interface
2-bits parallel input interface (MODE1)		
-40°C~+85°C		

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Uncooled Long-Wave Infrared Core Modules

Uncooled Long-Wave Infrared Core Modules

Product Model

Specifications

- Detector Type
- Spectral Range
- Pixel Pitch
- NETD
- Detector Frame Rate
- Image Adjustment
- Brightness/Contrast Adjustment
- Electronic Zoom
- Polarity
- Pseudocolor
- Crosshair
- Image Processing
- Nonuniformity Correction
- Image Mirroring
- Focusing Method

Temperature Measurement

- Range
- Temperature Measurement Accuracy (Typical value)
- Temperature Measurement Tools
- Information Row
- Isothermal Pseudocolor

Electrical Parameters

- Power Supply Voltage (Typical)
- Typical Power Consumption @25°C
- Analog Video
- Digital Video
- Serial Communication Interface

Physical Characteristics (Excluding lens and flange)

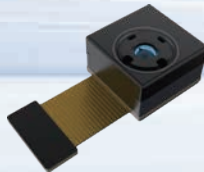
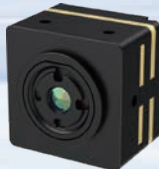
- Dimensions (W×L×H) mm
- Weight(g)

Optional Lenses

- Lens (mm)

Environmental Adaptability

- Operating Case Temperature
- Storage Case Temperature
- Humidity
- Vibration
- Shock

					
Resolution 160×120	Resolution 256×192	Resolution 256×192	Resolution 256×192	Resolution 256×192	Resolution 256×192
LCM 160	TC2-C	DVS	WN2 256	Turing C256	Turing L256
Vanadium oxide uncooled infrared focal plane detector	Vanadium oxide uncooled infrared focal plane detector		Vanadium oxide uncooled infrared focal plane detector		
8-14μm	8-14μm		8-14μm		
12μm	12μm		12μm		
<50mK @25°C, F#1.0, 25Hz	≤40mK@25°C,F#1.0,25Hz	<50mK @25°C, F#1.0, 25Hz	≤40mK@25°C,F#1.0,25Hz	≤50mK@25°C	≤50mK@25°C
25Hz	25Hz	≤25Hz	25Hz/50Hz	25Hz	25Hz (temperature measurement), 50Hz (imaging)
0-100 levels selectable	0-100 levels selectable		0-100 levels selectable	Manual mode/automatic mode	
/	/	1.0~8.0× continuous zoom (step 0.1×)	1.0~8.0× continuous zoom (step 0.1×)	1.0~8.0× continuous zoom (only supports analog video)	/
White hot/black hot	White hot/black hot		Black hot/white hot		
Supported	Supported		Supported		
/	/	Display/hide/move	Display/hide/move		
/	Self-developed second generation ISP Chip	/	Non-uniformity correction/digital filtering noise reduction/detail enhancement	Digital filtering noise reduction/digital detail enhancement	
Supports on-chip 4-bit non-uniformity correction and shutter correction	Automatic shutter correction/Shutterless	Automatic shutter-based correction / shutterless correction	Shutter correction/shutterless algorithm correction	Shutter correction	
/	Up/down, left/right, diagonal	Horizontal and vertical mirroring supported	Left/right, up/down, diagonal		
Athermalized prime lens	Athermalized prime lens	YUV422 (image data) Y16 (temperature data)JPEG (visible light, Android)NV12 (visible light, iOS)	Focus free/manual focus lens, optional	Athermalized prime lens	
-20°C~ 150°C (high image quality), 0°C~ 550°C (wide range)	-20°C ~ 150°C (high image quality), 50°C ~ 550°C (wide range)	-20°C~ 150°C (high image quality mode), 100°C ~ 550°C (wide temperature range mode)	-20°C ~ 150°C (high image quality), 100°C ~ 650°C (wide range)	-20°C ~ 150°C (high image quality), 100°C ~ 550°C (wide range)	
±2°C or ±2% of the reading (whichever is greater)	±2°C or ±2% (whichever is greater)	±2°C or ±2% (typical)	±2°C or ±2% (whichever is greater)	Temperature measurement series: ±3°C or ±3% of the reading (whichever is greater) @ ambient temperature -20°C ~ 60°C	
/	Analysis tools: spot, line, area	Spot measurement Adjustable emissivity	Analysis tools: spot, line, area	Analysis tools: spot, line, area	/
/	Information bar: displays temperature and other measurement data	Distance compensation Ambient temperature compensation	Information bar: displays temperature and other measurement data	/	
/	/		/		
5V (analog), 1.8V (digital)	5V(analog), 3.3V, 1.8V	5V	5V	3.8V~5.2V	3.8~5.2VDC/1.8V/3.3V
<0.045W	0.28W	Infrared only: 300 mW (typ.) Normal operation (with visible camera): 535 mW(typ.) Shutter operation (with visible camera): 630 mW (typ.)	<0.35W	0.35W	≤0.35W
/	/	PAL/NTSC	PAL/NTSC	Not supported	P format
8-bit standard parallel port	DVP/VOSPI/MIPI/USB	Digital Video Output	DVP/BT656/USB2.0/MIPI	BT.1120/BT.601/LVC MOS/MIPI	LVC MOS/BT.601/BT.1120 (Imaging)/USB2.0
I2C	I2C/USB/UART	USB 2.0	UART/I2C/USB2.0	UART/USB	
17.9mm×16.8mm×9.9mm	13mm×13mm×9.05mm	46.4mm× 23.4mm× 7.9 mm	21mm×21mm×10.3mm	21mm×14.6mm	18mm×18mm
2.4g	≤2.6g (3.2mm)	/	<7g	≤3.5g@3.2mm lens	8.7g
2.6mm	2mm/3.2mm/4.3mm/7mm	/	4mm/9.1mm/15mm/25mm	3.2mm/7mm	2mm/3.2mm/7mm/10mm
-20°C~+60°C	Imaging: -40°C ~+80°C, temperature measurement: -10°C ~+70°C	Imaging: -20°C~+70°C Temperature Measurement: -10°C ~+50°C	Imaging: -40°C~+80°C, temperature measurement: -20°C ~+70°C	-20°C~+60°C	
-45°C~+85°C	-45°C~+85°C		-45°C~+85°C		
5%~95%, non-condensing	5%~95%, non-condensing		5%~95%, non-condensing		
6.06g, random vibration, all axes	6.06g, random vibration, all axes	/	6.06g, random vibration, all axes		
25g, 11ms, half-sine waveform, 3 axes	80g, 11ms, half-sine waveform, 3 axes	25g, 11ms, half-sine wave, 3 axes	80g@4ms, sawtooth waveform, 3 axes/ 6 directions	40g@11ms, half-sine waveform, 3 axes/ 6 directions	80g@4ms, sawtooth waveform, 3 axes/ 6 directions

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Uncooled Long-Wave Infrared Core Modules

Uncooled Long-Wave Infrared Core Modules

Product Model

Specifications

- Detector Type
- Spectral Range
- Pixel Pitch
- NETD
- Detector Frame Rate
- Image Adjustment
 - Brightness/Contrast Adjustment
 - Electronic Zoom
 - Polarity
 - Pseudocolor
 - Crosshair
- Image Processing
- Nonuniformity Correction
- Image Mirroring
- Focusing Method
- Temperature Measurement
 - Range
 - Temperature Measurement Accuracy (Typical value)
 - Temperature Measurement Tools
 - Information Row
 - Isothermal Pseudocolor
- Electrical Parameters
 - Power Supply Voltage (Typical)
 - Typical Power Consumption @25°C
 - Analog Video
 - Digital Video
 - Serial Communication Interface
- Physical Characteristics (Excluding lens and flange)
 - Dimensions (W×L×H) mm
 - Weight (g)
- Optional Lenses
 - Lens (mm)
- Environmental Adaptability
 - Operating Case Temperature
 - Storage Case Temperature
 - Humidity
 - Vibration
 - Shock

				
Resolution 384×288	Resolution 384×288	Resolution 640×512	Resolution 640×512	Resolution 640×512
WN2 384	Turing L384	SE5640	WN2 640	Turing A640
Vanadium oxide uncooled infrared focal plane detector			Vanadium oxide uncooled infrared focal plane detector	
8-14μm			8-14μm	
12μm			12μm	
≤40mK@25°C,F#1.0,25Hz	≤50mK@25°C (≤40mk optional)	≤30mK@25°C,F#1.0	≤40mK@25°C,F#1.0,25Hz	≤50mK@25°C (≤40mK optional)
30Hz/60Hz	50Hz (imaging), 25Hz (temperature measurement)	30/60 Hz optional	30Hz/60Hz	25Hz (temperature measurement), 50Hz (imaging)
0~100 levels selectable	Manual mode/automatic mode		0-100 levels selectable	Manual mode/automatic mode/linear mode
1.0~8.0× continuous zoom (step 0.1×)	/		1.0~8.0× continuous zoom (step 0.1×)	1.0~4.0× continuous zoom (step 0.1×) (imaging)
Black hot/white hot			White hot/black hot	
Supported			Supported	
Display/hide/move			/	
Non-uniformity correction/digital filtering noise reduction/detail enhancement	Digital filtering noise reduction/digital detail enhancement	Non-uniformity correction, defective pixel compensation	Non-uniformity correction/digital filtering noise reduction / detail enhancement	Digital filtering noise reduction/digital detail enhancement
Shutter correction/shutterless algorithm correction			Shutter correction/shutterless algorithm correction	
Left/right, up/down, diagonal			Up/down, left/right, diagonal	
Focus free/manual focus lens, optional	Athermalized prime lens	Athermalized prime/manual focus lens	Focus free/manual focus lens, optional	Athermalized prime lens
-20°C~ 150°C (high image quality) 100°C~ 650°C (wide range)	Temperature measurement series: -20°C ~ 550°C (650°C, customizable) ±3°C or ±3% of the reading (whichever is greater) @ ambient temperature -20°C~60°C	/	High image quality: -20°C~ 150°C,high range: 100°C ~ 650°C ±2°C or ±2% (whichever is greater)	High image quality: -20°C~ 150°C, wide range: +100°C~ 550°C ±3°C or ±3% of the reading (whichever is greater) @ ambient temperature -20°C~ 60°C
Analysis tools: spot, line, area Information bar: displays temperature and other measurement data	/	/	Information bar: displays temperature and other measurement data	/
/			/	
5V	3.8~5.2VDC/1.8V/ 3.3V	5V~12VDC	5V	4-5.5VDC
<0.42W	≤0.35W	<1W	<0.7W	
PAL/NTSC	P format	PAL	PAL/NTSC	1-channel PAL format
DVP/BT656/USB2.0/MIPI	BT.656/BT.1120/LVCMOS/MIPI/USB2.0	BT656/mipi/usb2.0/dvp	DVP/BT656/USB2.0/MIPI	BT.656/BT.1120/14Bit or 8Bit LVCMOS/LVDS/USB2.0
UART/I2C/USB2.0	UART/USB	UART/I2C	UART/I2C/USB2.0	Uart/RS232/RS422/USB
21mm×21mm×10.3mm	18mm×18mm	≤28mm×28mm	21mm×21mm×10.3mm	26mm×26mm×19.2mm
<7g	<4.8g	28g±3g	<8.6g	20g±3g
4mm/6.8mm/9.1mm/15mm/25mm/35mm	2.88mm/5.3mm/9.1mm/19mm	13.5mm/35mm/55mm	9.1mm/13.5mm/18mm/25mm/35mm/55mm	4.1mm/6.9mm/9.1mm/13mm/19mm/25mm/35mm/55mm/75mm/100mm
-40°C~+80°C (-20°C~+70°C temperature measurement)	-40°C ~+80°C (-20~+60°C temperature measurement)	-40°C~+65°C	-40°C~+80°C (-20°C~+70°C temperature measurement)	-40°C ~+80°C (-20°C~+60°C temperature measurement)
-45°C~+85°C			-45°C~+85°C	
5%~95%, non-condensing			5%~95%, non-condensing	
6.06g, random vibration, all axes			6.06g, random vibration, all axes	
80g@4ms, sawtooth waveform, 3 axes/ 6 directions			80g@4ms, sawtooth waveform, 3 axes/ 6 directions	
1000g@0.3ms optical axis direction			1000g@0.3ms optical axis direction	

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Uncooled Long-Wave Infrared Core Modules

Uncooled Long-Wave Infrared Core Modules

Product Model

Specifications

- Detector Type
- Spectral Range
- Pixel Pitch
- NETD
- Detector Frame Rate
- Image Adjustment
- Brightness/Contrast Adjustment
- Electronic Zoom
- Polarity
- Pseudocolor
- Crosshair
- Image Processing
- Nonuniformity Correction
- Image Mirroring
- Focusing Method
- Temperature Measurement
- Range
- Temperature Measurement Accuracy (Typical value)
- Temperature Measurement Tools
- Information Row
- Isothermal Pseudocolor

Electrical Parameters

- Power Supply Voltage (Typical)
- Typical Power Consumption @25°C
- Analog Video
- Digital Video
- Serial Communication Interface

Physical Characteristics (Excluding lens and flange)

- Dimensions (W×L×H) mm
- Weight (g)
- Optional Lenses

Environmental Adaptability

- Operating Case Temperature
- Storage Case Temperature
- Humidity
- Vibration
- Shock

					
Resolution 640×512	Resolution 640×512	Resolution 640×512	Resolution 640×512	Resolution 640×512	Resolution 640×512
Turing A640H	Turing L640	Turing L640 PRO	Turing M640Pro	Turing A640G	Turing A640F
Vanadium oxide uncooled infrared focal plane detector			VOx uncooled infrared focal plane detector	Vanadium oxide uncooled infrared focal plane detector	
8~14μm			8~14μm	7~8.5μm/10.3~10.7μm	8~14μm
12μm			8μm	12μm	
≤40mK@25°C, F#1.0	≤50mK@25°C (≤40mK optional)		≤40mK@25°C, F#1.0	≤15mK@25°C, F#1.0	≤40mK@25°C, F#1.0
50Hz (60Hz optional)	50Hz (imaging), 25Hz (temperature measurement)		50 Hz (Imaging) / 30 Hz (Thermography)	25Hz	120Hz
Manual mode/automatic mode/linear mode			Manual/Automatic	Manual mode/automatic mode/linear mode	Manual mode/automatic mode
1.0~8.0× continuous zoom (step 0.1×)	/		/	/	
Black hot/white hot				Black hot/white hot	
Supported				Supported	
Display/hide/move		/		Display/hide/move	
Digital filtering noise reduction/digital detail enhancement	Digital filtering noise reduction/digital detail enhancement/histogram stretching	Non-TEC temperature control algorithm/digital noise filtering /digital detail enhancement/histogram stretching	Grayscale stretching, local contrast enhancement, temporal noise reduction, spatial noise reduction, detail enhancement, edge enhancement	Digital filtering noise reduction/digital detail enhancement	
Shutter correction/shutterless algorithm correction			/	Supported	
Left/right, up/down, diagonal				Left/right, up/down, diagonal	
Athermic Focus free lens/electrically controlled continuous zoom lens	Athermalized prime lens		/	Prime/manual focus	
/	High image quality: -20°C ~+150°C, wide range: 0°C ~ +650°C		-20°C ~ +150°C, 100°C ~ +650°C	-20°C ~ +650°C	
/	±3°C or ±3% of the reading (whichever is greater) @ ambient temperature -20°C ~ 60°C (±2°C optional)		±2 °C or ±2% of reading @ ambient temperature -20 °C ~ 60 °C	±2% or ±2°C (@25°C)	
/	Analysis tools: spot, line, area			Analysis tools: spot, line, area	
	/			/	
	/			/	
3.9~5VDC	3.8~5~2VDC / 1.8V /3.3V		Core Assembly MAIN_POWER: 3.8V ~ 5.2V (Typical: 5 V); 4P USB User Expansion Board supports USB 2.0, USB_VBUS: 5.0V	4V	3.8V~5.2V
≤0.7W	≤0.4W		≤0.5W	0.6W (without extension)	1.2W
1-channel PAL format		/	/	1-channel PAL format	/
BT.656/DVP/LVC MOS/USB2.0	BT.656/BT.1120/LVC MOS/MIPI/USB2.0	BT.656/ LVC MOS/MIPI/USB2.0	8bite LVC MOS/BT.601/2lane MIPI/USB2.0	LVC MOS/CDS2/BT656/BT1120	cameralink/BT1120/MIPI
Uart/RS232/RS422/USB	Uart/RS232/USB/12C(optional)	UART/USB	UART (1.8V)	UART (3.3V)	UART (1.8V)
26mm×26mm×19.8mm	21mm×21mm	17mm×17.3mm	13mm×13mm×13.4mm	26mm × 26mm	
21g±1g	12g		<3.5g	20g±3g	18g±3g
6.9mm/13mm/19mm/25mm/35mm/55mm	4.1mm/6.9mm/9.1mm/13mm/25mm/45mm	9.1mm	4.5mm/8.7mm	19mm/35mm F0.8	Imaging: 9.1mm; Temperature measurement:35mm
-40°C~+80°C	-40°C ~+80°C (-20°C ~+ 60°C temperature measurement)		-40°C ~ +70°C (-20°C~+60°C Temperature measurement)	-40°C~+70°C	-40°C~+70°C
-45°C~+85°C	-45°C~+85°C	-45°C~+85°C	-45°C~+85°C	-45°C~+85°C	-45°C~+85°C
5%~95%, non-condensing	5% ~95%, non-condensing		5% ~95%, non-condensing	5% ~ 95%, non-condensing	5% ~ 95%, non-condensing
6.06g, random vibration, all axes	6.06g, random vibration, all axes		2g, random vibration, 3 axes/ 6 directions	6.06g, random vibration, all axes	6.06g, random vibration, all axes
1000g@0.3ms optical axis direction	80g@4ms, sawtooth waveform, 3 axes/ 6 directions		6g, 2ms, sawtooth waveform, 3 axes/ 6 directions	80g@4ms, sawtooth waveform, 3 axes/ 6 directions	1000g, 0.3ms, half-sine waveform, optical axis direction

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Uncooled Long-Wave Infrared Core Modules

Uncooled Long-Wave Infrared Core Modules									
	Resolution 1280×1024			Resolution 1280×1024			Resolution 1280×1024		
	SE5 1280			Turing A1280H			Turing L1280		
	Specifications								
	Detector Type Vanadium oxide uncooled infrared focal plane detector								
	Spectral Range 8~14μm								
	Pixel Pitch 12μm								
	NETD ≤40mK@25°C, F#1.0, 25Hz								
	50Hz(imaging), 30Hz(temperature measurement)			30Hz			≤40mK@25°C, F#1.0 30Hz(temperature measurement) 30Hz/50Hz(imaging, optional)		
	Image Adjustment								
	Brightness/Contrast Adjustment 0~100 levels selectable								
	Electronic Zoom 1.0~8.0× continuous zoom (step 0.1×)								
	Polarity Black hot/white hot								
	Pseudocolor Supported								
	Crosshair Display/hide/move								
	Non-uniformity correction/digital filtering noise reduction/detail enhancement			Display/hide (default)/move (digital video) Non-TEC temperature control algorithm with non-uniformity correction/digital noise filtering/digital detail enhancement			/		
	Image Processing Non-uniformity Correction Shutter correction/shutterless algorithm correction								
	Image Mirroring Left/right, up/down, diagonal								
	Focusing Method Athermalized prime/manual focus lens								
	Temperature Measurement								
Range High image quality: -20°C~+150°C; wide range: 50°C~+600°C									
Temperature Measurement Accuracy (Typical value) Target temperature: -20°C ~+150°C, accuracy: ±2°C or ±2% of the reading			/			High image quality: -20°C~+150°C, wide range: 100°C~+650°C ±2°C or ±2% of the reading (whichever is greater) @ ambient temperature 15°C~35°C			
Temperature Measurement Tools Analysis tools: spot, line, area			/			Analysis tools: spot, line, area			
Information Row Information bar: displays temperature and other measurement data									
Isothermal Pseudocolor Supported									
Electrical Parameters									
Power Supply Voltage (Typical) 5V									
Typical Power <1.3W			6~20V Steady state≤1W			4.0-5.5VDC <1W			
Consumption @25°C									
Analog Video /									
Digital Video DVP/BT1120/ MIPI/USB3.0									
Serial Communication Interface UART/I2C			BT.1120/LVCOS RS422/RS232/UART			BT1120/14Bit or 8Bit LVCOS/MIPI/USB3.0 UART/USB3.0			
Physical Characteristics (Excluding lens and flange)									
Dimensions (W×L×H) mm 29mm×29mm×15.7mm									
Weight(g) <26g			32mm×32mm×25.5mm 43g±5g			29mm×29mm×18.9mm 24.5g			
Optional Lenses									
Lens (mm) 19mm/35mm/55mm									
25mm/35mm/50mm/55mm/75mm			10mm/19mm/24mm/35mm/50mm/75mm						
Environmental Adaptability									
Operating Case Temperature Imaging (-40°C ~+80°C), temperature measurement (-20°C ~+60°C)									
-50°C~+85°C			-40°C~+60°C			-40°C~+70°C (-20°C ~+60°C temperature measurement)			
Storage Case Temperature -45°C~+70°C									
Humidity 5% ~95%, non-condensing									
Vibration 6.06g, random vibration, all axes									
1000g@0.3ms optical axis direction			6.06g, random vibration, triaxial, 5min/axis 1000g@0.3ms optical axis direction			6.06g, random vibration, all axes 80g@4ms, sawtooth waveform, 3 axes/ 6 directions			
Shock									

RAYTRON OEM

Uncooled Long-Wave Infrared Core Modules

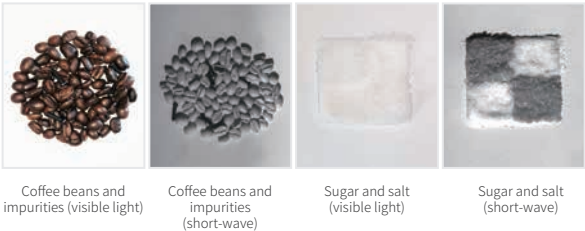
Uncooled Long-Wave Infrared Core Modules				
	Turing F384	Turing F640	Turing F1280	Turing F1920
	Vanadium oxide uncooled infrared focal plane detector			
	384×288	640×512	1280×1024	1920×1080
	12μm	8μm	8μm	8μm
	50Hz	25Hz (temperature measurement) 50Hz (imaging)	50Hz	30Hz
	8~14μm		50Hz	30Hz
	≤40mK@25°C,F#1.0	≤40mK@25°C,F#1.0	≤35mK@25°C,F#1.0	≤30mK@25°C,F#1.0
	Support (20 types)			
	1.0~8.0× continuous zoom (step 0.1×)			1.0~8.0× continuous zoom (step 0.1×) supports arbitrary area enlargement
	Non-uniformity correction/brightness and contrast adjustment/time domain filtering and spatial domain filtering for noise reduction/digital detail enhancement/style adjustment			
	Left/right, up/down, diagonal			Supported
	/			
	Supported			
	-20°C~+150°C, 0°C ~+650°C			
	±2°C or ±2% (whichever is greater) @ ambient temperature -20°C ~+60°C			
	Supported			
	Supports a wide range of network protocols: TCP/IP, UDP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, RTP, RTSP, RTCP, IGMP, SMTP, NTP, QoS, and more			
	Compatible with Modbus TCP, MQTT, ONVIF, GB28181, and SDK			ONVIF, GB28181, SDK
	Supports up to 8 channels			Supports up to 8 channels
Up to 20 users, divided into three levels: administrator, operator, and standard user			Supports Chrome, Edge, Firefox, etc., and multiple languages	
Supports Google, Firefox, Edge for browsers				
Supports fire point detection				
Supported				
Supports abnormal detection and alarm linkage for network disconnection, IP address conflicts, memory errors, unauthorized access, and burn-warning alerts				
Supports intelligent event analysis such as area intrusion, tripwire intrusion, and human/vehicle recognition				
Recording / Snapshot (supports thermal image capture) / Email / PTZ linkage / Alarm output				
Athermalized / Focus free electric adjustment / continuous zoom		Athermalized / Focus free electric adjustment / continuous zoom (for imaging) / athermalized (for temperature measurement) Manual/automatic (for imaging), manual (for temperature measurement) Imaging supported; temperature measurement not supported	Athermalized / Focus free electric adjustment / continuous zoom Manual/automatic (auto focus time near clear point≤1s) Supported	
Manual/automatic		Supported		
Supported		Supported		
Imaging supported; temperature measurement not supported		Supported		
5~24V DC (12V DC recommended)				
<1.5W		<2.8W		
1-channel PAL format		/		
LVCMOS/BT.601/BT.1120		DVP (LVCMOS/BT.1120), MIP (LVCMOS/BT.1120), scalable SDI, USB, HDMI		
RS-232/UART		RS-232/UART		
80g±10g		89g±5g		
44.5mm×43mm		45mm×45mm		
		165g±5g (lens not included)		
		55mm×55mm		
12V DC ±10%				
Imaging <2.0W, temperature measurement <2.4W		Imaging <2.0W, temperature measurement <2.4W		
RJ45 10M/100M Adaptive Ethernet port×1, RS-485×1, UART×1		10M/100M/1000M Adaptive Ethernet port×1,RS-485×1		
1 alarm input,1 alarm output				
1 audio input,1 audio output				
96.5g±10g (lens not included)		96.5g±10g (lens not included)		
45mm×45mm		170g±10g (lens not included)		
		230g±10g (lens not included)		
		55mm×55mm×53mm		

RAYTRON OEM

Typical Application Scenarios of Short-Wave Infrared Products

Grain Sorting

Different types of grain particles (or impurities) exhibit distinct absorption and reflection characteristics in the short-wave infrared spectrum due to variations in their molecular composition, such as moisture, protein, starch, and oil content. By detecting these spectral differences, it is possible to accurately identify and sort grain quality, impurities, and defects.



Coffee beans and impurities (visible light) Coffee beans and impurities (short-wave) Sugar and salt (visible light) Sugar and salt (short-wave)

Waste Recycling and Sorting

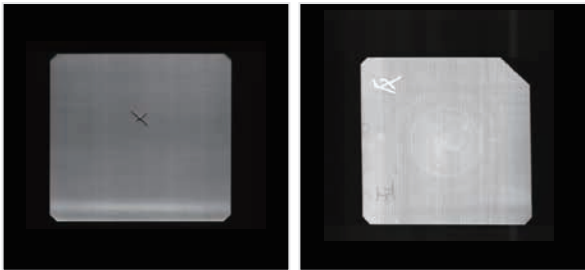
Leveraging its ability to recognize chemical composition, short-wave infrared technology can precisely differentiate between materials, particularly in scenarios requiring detailed classification within mixed waste. Different categories of waste - such as plastics, paper, textiles, and wood - have unique absorption peaks in the short-wave infrared band due to differences in molecular structure. Through spectral acquisition and analysis, automated and highly accurate sorting can be achieved.



PP PE PET PVC PP PE PET PVC

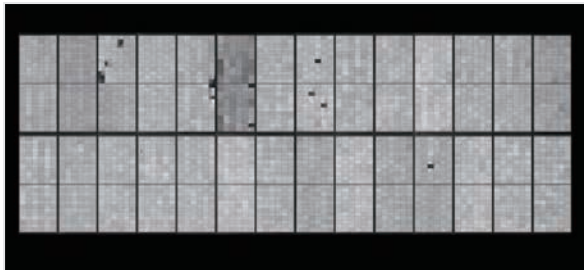
Photovoltaic Cell Production Process

Wafer defect detection, film/coating quality inspection



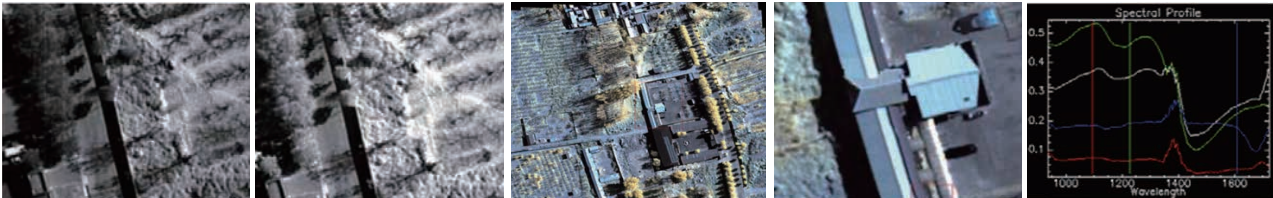
Photovoltaic Power Station Operation and Maintenance

Cracking/delamination extension detection



UAV Hyperspectral Camera

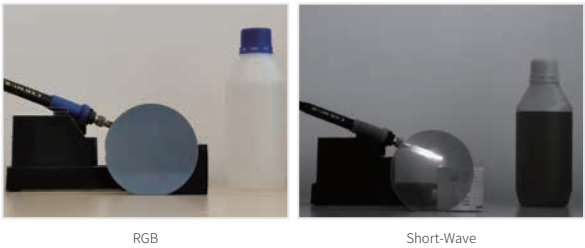
In the near-infrared band, the imaging and spectral characteristics of ground objects and other targets exhibit distinct properties compared with those in the visible–near-infrared range. These special attributes enable the analysis and interpretation of information related to the atmosphere, water vapor, geology, vegetation, camouflage, and other targets.



Grayscale image at single wavelength (1440 nm & 1623 nm) Hyperspectral test images (after splicing, two sorties) Target characteristic spectrum

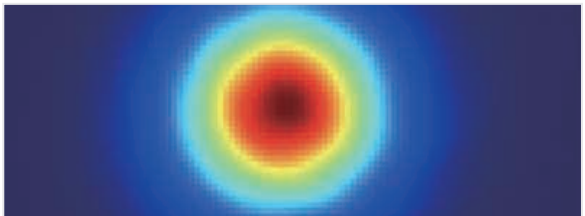
Semiconductor Field

The IC industry leverages silicon’s transparency in the short-wave band to perform nondestructive defect detection during manufacturing. This includes monitoring impurities during silicon crystal growth to improve yield and productivity, as well as wafer inspection and packaging.



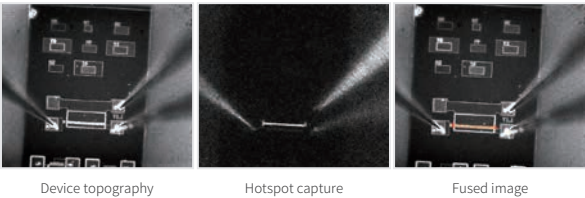
Spot Analysis

A short-wave infrared camera can be used for real-time imaging and analysis of laser spots, including spot shape, size, energy distribution, and position.



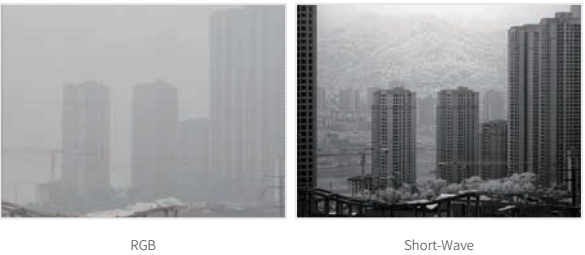
Semiconductor Failure Analysis Tools

EMM (l low-light microscope) Defects detectable by EMMI technology include leakage junctions, contact burrs, hot-electron effects, latch-up effects, oxide leakage, polysilicon whiskers, substrate damage, and physical damage. In addition, EMMI can also reveal inherent bright spots such as saturated/active bipolar transistors, saturated MOS/dynamic CMOS, and forward-biased diodes or reverse-biased diodes (breakdown).



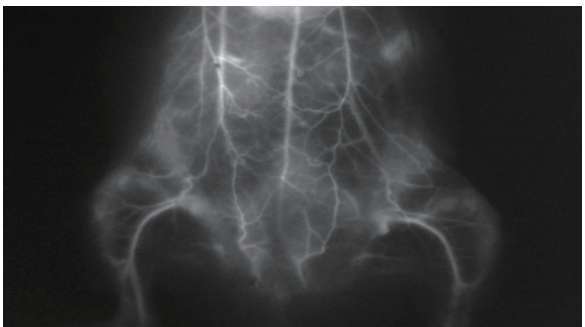
Observation (through fog)

Short-wave infrared imaging is less affected by atmospheric scattering, providing strong penetration through fog, haze, and smoke, and enabling long-range effective detection. Monitoring in severe weather and low visibility weather



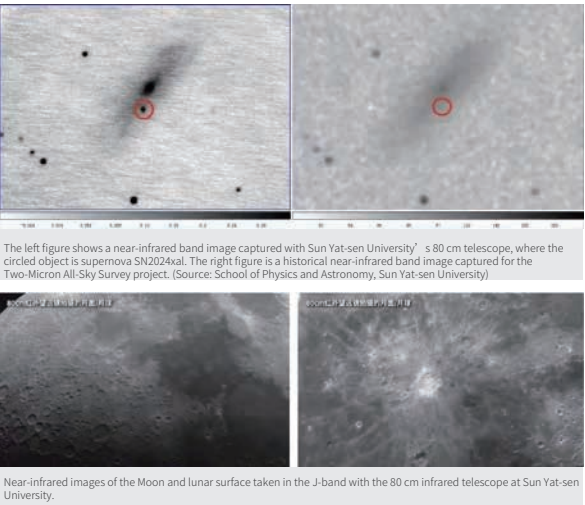
Near Infrared Two-zone in Vivo Imaging

In the second near-infrared window, the absorption and scattering of light in biological tissues are relatively weak. As a result, light in this band can penetrate tissues such as muscles, bones, and internal organs more effectively, reducing absorption and scattering, and thereby enabling high-resolution, high-sensitivity imaging of deeper structures and physiological processes within living organisms. By using chromogenic fluorescent proteins under specific light sources, it is possible to visualize the distribution of protein molecules within mouse blood vessels.



Astronomical Observation

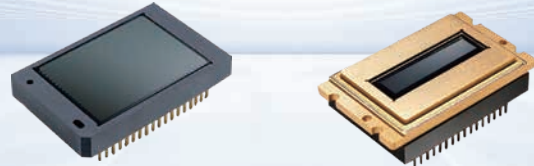
With the installation of an InGaAs infrared camera, observations can be conducted in the J-band at 1.2 μm.



The left figure shows a near-infrared band image captured with Sun Yat-sen University’s 80 cm telescope, where the circled object is supernova SN2024kal. The right figure is a historical near-infrared band image captured for the Two-Micron All-Sky Survey project. (Source: School of Physics and Astronomy, Sun Yat-sen University) Near-infrared images of the Moon and lunar surface taken in the J-band with the 80 cm infrared telescope at Sun Yat-sen University.

RAYTRON OEM

Short-Wave Infrared Linear Array Detectors / Camera

Short-Wave Infrared Linear Array Detectors					Short-Wave Infrared Linear Array Camera					
	Product Model	RL01K1-C0		RL01K1/RL5122-H1		Product Model	NS-101L2-GE			
	Sensor	InGaAs				Detector Type	InGaAs			
	Spectral Response Range	0.9~1.7μm				Spectral Response Range	0.9~1.7μm			
	Quantum Efficiency	>70%(1.0~1.6μm)				Quantum efficiency	≥70%(1.0μm~1.6μm)			
	Optical Fill Factor	100%				Optical Fill Factor	100%			
	Pixel Pitch	12.5μm	12.5μm	25μm		Pixel Pitch	12.5μm			
	Area Array Size	1024×1	1024×1	512×2		Area Array Size	1024×1			
	Effective Pixel Rate	≥99.8%				Effective Pixel Rate	≥99.8%			
	Maximum Output Line Frequency	36kHz				Maximum Output Line Frequency	36kHz			
	Readout Mode	ITR, IWR				Output Data Depth	8bit/14bit			
	Minimum Integration Time	15μs				Minimum Integration Time	15μs			
	Readout Noise (Typical)	≤50e@ 1~36kHz,20°C	50e@ 1~36kHz,20°C			Readout Noise (Typical value)	≤50e@ 1-36kHz,20°C			
	Optional Gain	≥4 level				Optional Gain	4-level			
	Average Pixel Dark Current	≤200ke/s@20°C	≤500ke/s@20°C			Average Pixel Dark Current	≤200ke/s@ 20°C			
Operating Power Consumption	≤200mW			Power Supply Voltage	Typical 12V					
Signal Output Swing	1.9±0.1V			Typical Power Consumption	<2.5W					
Dynamic Range	≥58dB			Communication Interface	GigE					
Response Inhomogeneity	≤5%, non-corrected			Lens Interface	C-Mount					
Packaging Type	PGA ceramic packaging (TECless)	Metal-ceramic integration with hermetic packaging (built-in single-stage TEC)		Operating Environment Temperature	-20°C~+50°C					
Overall Dimensions (Excluding pin size)	28.91mm×18.64mm×4.0mm	25.5mm×17.7mm×6.7mm		Storage Environment Temperature	-40°C~+60°C					
Device Weight	8±2g	~8g		Temperature Control	TECless					
Operating Environment Temperature	-20°C~+50°C	-40°C~+60°C		Core Weight	226g±10g					
Storage Environment Temperature	-40°C~+60°C	-45°C~+70°C		Core Dimensions	53mm×60mm×60mm					
				I/O Interface	1 set of differential input/output 1 set of configurable differential/single-ended input 1 set of optocoupler single-ended input					

RAYTRON OEM

Short-Wave Infrared Area Array Detectors

Short-Wave Infrared Area Array Detectors

Product Model	RS615BM1	RS6152M1	RSS102M1
Sensor	InGaAs		
Spectral Response Range	0.9~1.7μm		
Quantum Efficiency	>70%(1.0~1.6μm)		
Optical Fill Factor	100%		
Pixel Pitch	15μm	10μm	
Area Array Size	640×512	1280×1024	
Effective Pixel Rate	≥99.8%		
Maximum Frame Rate	400fps@25MHz (full window)	120fps (full window)	60fps (full window)
Integration Type	Global shutter		
Minimum Integration Time	5μs	1μs	
Readout Noise (Typical)	30e@20 °C, high gain mode	35e@20 °C, high gain mode	45e@20 °C, high gain mode
Optional Gain	3-level		
Average Pixel Dark Current	≤100ke/s@20°C	≤90ke/s@20°C	
Operating Power Consumption	≤240mW	≤200mW	≤350mW
Signal Output Swing	1.8±0.1V	/	
Effective Data Output Bit Depth	/	13bit	
Dynamic Range	≥50dB	≥48dB	
Response Inhomogeneity	≤5%, non-corrected		
Packaging Type	Gas-tight metal packaging (built-in single stage TEC)		
Outline Dimensions	32.0mm×23.5mm×7.0mm (excluding pin size)	32.0mm×23.5mm×7.0mm (excluding pin size)	32.0mm×23.5mm×7.0mm (excluding pin size)
Device Weight	25±2g	28±2g	
Operating Environment Temperature	-40°C~+60°C	-40°C~+65°C	
Storage Environment Temperature	-55°C~+70°C	-45°C~+70°C	

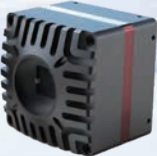
RAYTRON OEM

Short-Wave Infrared Area Array Cameras

Short-Wave Infrared Area Array Cameras

Product Model

- Detector Type
- Spectral Response Range
- Pixel Pitch
- Resolution
- Frame Rate
- Effective Pixel Rate
- Integration Type
- Exposure Time Range
- Cooled Mode
- Output Data Depth
- Readout Noise (Typical value)
- Optional Gain
- Dynamic Range
- Average Pixel Dark Current
- On-board Image Processing
- Power Supply Range
- Typical Power Consumption @25°C
- Digital Video
- Analog Video
- Communication Interface
- Optical Interface
- Weight
- Dimensions
- Operating Case Temperature
- Storage Case Temperature
- Vibration
- Shock

						
General Purpose Short-Wave Infrared Area Array Camera	Multifunctional Short-Wave Infrared Area Array Camera	High Frame Rate SWIR Area Scan Camera	Scientific Research Short-Wave Infrared Area Array Camera	Short-Wave Infrared Area Array Camera	Uncooled Short-Wave Infrared Module Component	Short-Wave Infrared Area Array Camera
PR-GE	NS-615A-GE	NS-615AS-10GE	D-BLUE1	Keen B615	Keen F615	Keen M615
InGaAs short-wave infrared focal plane detector			InGaAs short-wave infrared focal plane detector			
0.9-1.7μm			0.9-1.7μm			
15μm			15μm			
640×512			640×512			
150fps(USB3.0)/300fps(Cameralink)	180fps	825Hz	50Hz	25Hz/50Hz	25Hz~200Hz/300Hz	25Hz
≥99.8%			≥99.8%			
Snapshot global shutter			Snapshot global shutter			
0.1ms~30ms	0.1ms~20ms	5us~20ms(LG)	15us~60s	0.005ms~30ms 35ms	0.1~35.1ms@200Hz 0.1~36.8ms@300Hz	0.005~20ms
TEC 1			TEC 3	TEC 1	TEC 1	/
10bit/14bit(USB3.0)/12bit(Cameralink)	14bit/12bit/10bit/8bit	8bit/10bit/12bit/14bit	14bit	8bit/10bit/14bit	/	8bit/10bit/14bit
30e@Gain0			≤15e(HG)	30e@Gain0	/	35e@Gain0
3-level			3-level	3-level	/	3-level
50dB(Gain0),62dB(Gain1),72dB(Gain2)	67dB(HG)	50dB(Gain0),62dB(Gain1),72dB(Gain2)	70dB (MG)	50dB(Gain0),62dB(Gain1),72dB(Gain2)	/	50dB(Gain0),60dB(Gain1),73dB(Gain2)
≤80ke/s/pixel@ 25°C	≤100ke/s/pixel@ 20°C	≤80ke/s@20°C	≤700e/s/pixel@-50°C (air-cooled)	≤100ke/s@20°C	≤100ke/s@20°C	≤100ke/s@20°C
Non-uniformity correction, filtering, detail enhancement, contrast enhancement	Non-uniformity correction, bad point correction	Non-uniformity correction, defective pixel compensation	Non-uniformity correction, bad point correction, filtering	Non-uniformity correction, brightness/contras adjustment, time domain/airspace noise reduction, digital detail enhancement	/	Non-uniformity correction, brightness/contras adjustment, time domain/airspace noise reduction, digital detail enhancement
7V~24V DC (12V DC recommended)	12V DC	5V~24V DC (12V DC recommended)	12V DC	5-24V DC (voltage: 12V, DC, recommended)	5-24V DC (voltage: 12V, DC, recommended)	5V DC
3.5W (maximum≤5 W)	<2.5W (close TEC)	<8.4w(TEC OFF)	≤36W	<1.8W(USB)	<4W	<650mW
USB 3.0 or Cameralink, optional	GigE	10GigE	Cameralink or Ethernet	Cameralink/USB 3.0/Ethernet	Camera Link (300 Hz)/USB 3.0 (200 Hz)	MIPI/Cameralink/USB3.0
PAL	/	/	/			
UART232	GigE	10GigE	Cameralink or Ethernet	RS-232/RS-422/UART (3.3V)	RS-422/USB	RS-422/UART (1.8V)
C-Mount			C-Mount			
245g±10g	150g±5g	486g±10g	≤2kg	135g±3g (USB)	195g±3g (without lens)	18g±2g
55mm×55mm×60mm	46mm×46mm×61mm	68mm×68mm×98mm	148mm×98mm×116.5mm	48mm×48mm×48.5mm (USB)	54mm×54mm×48mm±0.3mm (without lens)	22mm×22mm×23.5mm
-20°C~+55°C	-40°C~+60°C	-40°C~+60°C	0°C~+30°C	-40°C~+50°C	-40°C~+50°C	-40°C~+50°C
-40°C~+70°C	-40°C~+85°C	-40°C~+85°C	-40°C~+60°C	-45°C~+85°C	-45°C~+85°C	-45°C~+70°C
9.0g, random vibration, 3 axes	50~2000Hz, 0.01g^2/Hz, 3 axes	50~2000Hz,0.01g^2/Hz, 3 axes	50~2000Hz, 0.01g^2/Hz, 3 axes	6.06g, random vibration, 3 axes	6.06g, random vibration, 3 axes	4.06g, random vibration, 3 axes
40g, 11 ms, sawtooth waveform, 3 axes/6 directions	25g, 6ms, half-sine waveform, 3 axes/6 directions	25g, 6ms, half-sine waveform, 3 axes/ 6 directions	25g, 6ms, half-sine waveform, 3axes/6 directions	80g, 4ms, sawtooth waveform, 3 axes/6 directions	80g, 4ms, final peak sawtooth wave, 3 axes and 6 directions	80g, 4ms, sawtooth waveform, 3 axes/6 directions

RAYTRON OEM

Optical Gas Imaging (OGI) Detector

Product Features

The OGI330HM is a series of high-operating-temperature mid-wave infrared (MWIR) gas detectors based on III-V materials, featuring a 320×256 array with a 30μm pixel pitch. It operates at temperatures up to 150K, achieving excellent SWaP-C (Size, Weight, Power, and Cost) performance, and offers efficient detection capabilities for volatile organic compound (VOC) gases.

Technical Advantages

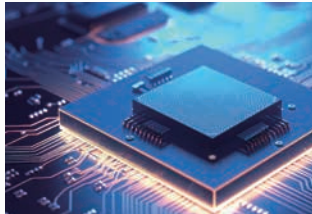
SWaP-C, Long Lifespan, Excellent Material Stability applications.

Applications

The product is extensively used in a wide range of fields, including gas detection (OGI), hyperspectral imaging, security monitoring, and biomedical technology.



Gas Detection (OGI)



Hyperspectral Detector



Security Monitoring



Biomedical

Optical Gas Imaging (OGI) Detector

Product Series

Product Model	F12BL-A	F12BL-B	F12BL-C	F12BL-D
Response Band	3.2±0.1μm-3.5±0.1μm	3.8±0.1μm-4.1±0.1μm	4.2±0.1μm-4.4±0.1μm	4.5±0.1μm-4.7±0.1μm
Array Specifications	320×256			
Pixel Pitch	30μm			
F-number	1.2			
NETD	≤10mK			
Effective Pixel Rate	≥99.5%			
Response Inhomogeneity	≤10%			
Stable Power Consumption	≤4W (25°C±2°C)			
Maximum Power Consumption	≤10W (25°C±2°C)			
Power Supply	12V DC			
Cooled Time	≤2min30s (25°C±2°C)			
Weight	≤280g			
Dimensions	70mm×62.5mm×37.2mm			
Operating Case Temperature	-40°C~+70°C			
Cooler MTTF	≥20000h(25°C±2°C)			
Applications	Methane, Ethane, and VOC Gases	Furnace Safety Inspection	Carbon Dioxide	Carbon Monoxide, Nitrous Oxide, Ketene



OGI330HM

Product Model	F12BL-A	F12BL-B	F12BL-C	F12BL-D
Response Band	3.2±0.1μm-3.5±0.1μm	3.8±0.1μm-4.1±0.1μm	4.2±0.1μm-4.4±0.1μm	4.5±0.1μm-4.7±0.1μm
Array Specifications	320×256			
Pixel Pitch	30μm			
F-number	1.2			
NETD	≤10mK			
Effective Pixel Rate	≥99.5%			
Response Inhomogeneity	≤10%			
Stable Power Consumption	≤4W (25°C±2°C)			
Maximum Power Consumption	≤10W (25°C±2°C)			
Power Supply	12V DC			
Cooled Time	≤2min30s (25°C±2°C)			
Weight	≤280g			
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Operating Case Temperature	-40°C~+70°C			
Cooler MTTF	≥20000h(25°C±2°C)			
Applications	Methane, Ethane, and VOC Gases	Furnace Safety Inspection	Carbon Dioxide	Carbon Monoxide, Nitrous Oxide, Ketene

RAYTRON OEM

Cooled Infrared Core Modules

Cooled Infrared Core Modules

Product Model

Specifications

- Detector Type
- Resolution
- Pixel Pitch
- Frame Rate
- F #
- Response Band
- NETD
- Detector Dead-pixel Rate
- Cooled Time@25°C

Optional Lens

Image Adjustment

- Brightness/Contrast Adjustment
- Polarity
- Cross Cursor
- Electronic Zoom
- Image Processing
- Image Flip

Power Source

- Power Supply Range
- Typical Power Consumption @25°C

Interface

- Analog Video
- Digital Video
- Serial Communication Interface
- External Synchronization

Physical Properties

- Dimensions (no lens)
- Weight (no lens)

Environmental Adaptability

- Operating Case Temperature
- Storage Case Temperature
- Random Vibration
- Shock
- MTTF
- Storage Life



Medium-Wave Cooled Infrared Module



Medium-Wave Cooled Infrared Module



Medium-Wave Cooled Infrared Module



Medium-Wave HOT Cooled Infrared Module



Long-Wave Cooled Infrared Module

Photon M615L	Photon M615D	Photon MS10	Photon H615	Photon L615
Mercury cadmium telluride refrigerated infrared focal plane detector			II superlattice-like refrigerated infrared focal plane detector	
640×512	15μm	1280×1024	640×512	15μm
50Hz/100Hz		50Hz	50Hz/30Hz	100Hz/50Hz/30Hz
F4.0/F5.5		F2.0/F4.0	F4.0/F5.5	F2.0
3.7~4.8μm		3.7 ± 0.2μm - 4.8 ± 0.2μm	3.6-5.0μm	7.7-10μm
≤15mK@25°C		≤25mk@25°	≤20mK@F4.0, 25°C/≤25mK@F5.5, 25°C	≤25mK@25°C
≤0.5%		0.20%		≤0.5%
≤7min		5min30s	≤3min	≤7min
Straight-tube Focus free: 50mm, 100mm Straight-tube continuous zoom: 15~300mm, 18~275mm, 25~460mm, 33~660mm, 88~1100mm Folded-path continuous zoom: 88~1100mm		Straight-barrel prime lens: 25 mm Straight-barrel continuous zoom lenses: 15~300 mm,21~460mm, 40~660 mm	Straight-tube Focus free: 50mm, 200mm Straight-tube continuous zoom: 15~300mm, 18~275 mm, 25~460mm, 33~660mm, 88~1100mm	Straight-tube Focus free: 50mm Straight-tube continuous zoom:15~200mm, 20~300mm
Automatic/manual			Automatic/manual	
Black hot / white hot (default)			Black hot/white hot (default)	
Display/hide/move			Display/hide/move	
1.0~8.0× continuous zoom (step 0.1×)			1.0~8.0× continuous zoom (step 0.1×)	
Non-uniformity correction, digital filtering noise reduction, digital detail enhancement			Non-uniformity correction, digital filtering noise reduction, digital detail enhancement	
Left/right, up/down, diagonal flip			Left/right, up/down, diagonal flip	
11~13V DC (without isolation board), typical voltage:12V Stable power consumption≤ 10W, peak power consumption≤ 25W	11~13V DC (without spacer plate), typical voltage: 12V Stable power consumption ≤ 15W, peak power consumption ≤ 25W	24 ± 0.5 V DC, typical voltage: 24V Stable power consumption ≤ 15W, peak power consumption ≤ 30W	12±0.5 V DC, typical voltage: 12V Stable power consumption≤ 6W, peak power consumption≤ 13W	26~32V DC, typical voltage: 28V Stable power consumption≤ 12W, peak power consumption≤ 25W
PAL format			PAL format	
Cameralink/SDI/Ethernet			Cameralink/SDI/DVP/MIPI	Cameralink
RS422 (default baud rate: 115200)			RS422 (default baud rate: 115200)	
Internal synchronization (default)/external synchronous output/external synchronous input/adaptive synchronization			Internal synchronization (default)/external synchronous output/external synchronous input/adaptive synchronization	
120 mm×88 mm×57mm (Without spacer plate) ≤ 480g (without spacer plate)	104mm×102mm×55mm (without spacer plate) ≤572g (without spacer plate)	112×98.5×60mm ≤900g (without spacer plate)	76.5mm×72.8mm×46.6mm ≤364g	121mm×75mm×79mm ≤870g
-40°C~+60°C			-40°C~+70°C	-40°C~+60°C
-45°C~+65°C			-45°C~+75°C	-45°C~+65°C
4.2g			4.16g	6.06g
Sawtooth waveform, 40g, 11ms (3 axes/ 6 directions, 3 times each)			Sawtooth waveform, 30g, 11ms (3 axes/ 6 directions, 3 times each)	
≥6000h	≥18000h ≥10years	≥20000h	≥20000h ≥10years	≥10000h ≥15 years

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Cooled Infrared Imaging Modules for Gas Detection

Cooled Infrared Imaging Modules for Gas Detection

Product Model

Specifications

- Detector Type
- Resolution
- Pixel Pitch
- Frame Rate
- F #
- Response Band
- NETD
- Types of Gas Detection
- Cooled Time@25°C
- Optional Lens

Image Adjustment

- Brightness/Contrast Adjustment
- Polarity
- Cross Cursor
- Electronic Zoom
- Image Processing
- Image Flip

Power Source

- Power Supply Range
- Typical Power Consumption @25°C

Interface

- Analog Video
- Digital Video
- Serial Communication Interface

External Synchronization

Temperature Measurement Performance

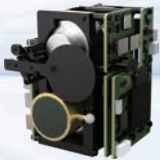
- Temperature Measurement Range
- Temperature Measurement Accuracy
- Temperature Measurement Functions

Physical Properties

- Dimensions (no lens)
- Weight (no lens)

Environmental Adaptability

- Operating Case Temperature
- Storage Case Temperature
- MTTF
- Storage Life

	
Cooled Infrared Gas Detection Module	MCT Refrigerated infrared focal plane detector
Photon C330L	Photon C330H
MCT Refrigerated infrared focal plane detector	Indium Arsenide Antimonide Cooled Infrared Focal Plane Detector
	320×256
	30μm
	25Hz
	1.2
	3.2~3.4μm
≤15mK@25°C	≤10mK@25°C
Methane, ethane, propane, butane, isobutane, ethylene, propylene, butene, methanol and the like	
≤6min	≤3.5min
Straight-tube Focus free:50mm Straight-tube continuous zoom:25~75mm, 15~150mm	Straight-tube motorized Focus free: 50 mm, 100 mm Straight-tube continuous zoom: 25~75 mm, 15~150 mm
Automatic/manual	
Black hot/White hot (default), supports 8 false colors	
Display/hide/move	
1.0~8.0×continuous zoom (step 0.1×)	
Non-uniformity correction, defective pixel correction, digital filtering noise reduction, digital detail enhancement, scene mode switching, gas enhancement Normal/left/right, up/down, diagonal flip	Non-uniformity correction, digital filtering noise reduction, digital detail enhancement, scene mode switching, gas enhancement Left/right, up/down, diagonal flip
Left/right, up/down, diagonal flip	
DC 24V@Cameralink/POE IEEE 802.3BT@Ethernet	12±0.5V DC
Stable power consumption≤13W (fixed-focus lens), peak power consumption≤21W@Cameralink	Stable power consumption≤8W, peak power consumption ≤14W
PAL format@Cameralink	PAL
Cameralink/Ethernet	Cameralink/DVP/MIPI
RS422@Cameralink/RJ45 100M Ethernet network port@Ethernet	RS422/UART (3.3V)
/	Internal synchronization (default)/external synchronization output/external synchronization input/adaptive synchronization
/	-20°C ~ 450°C
/	±2°C (-20°C ~ 100°C), 2% (>100°C)
/	Full Frame Analysis, Environmental Parameter Calibration, Temperature Span Stretching
150mm×72.8mm×89.5mm	71.9mm×65.4mm×75.5mm
≤824g@Cameralink/≤958g@Ethernet	350g
-20°C~+50°C	-40°C~+70°C
-30°C~+60°C	-55°C~+70°C
≥15000h	≥20000h
≥10 years	

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Laser Ranging Modules



► Ultra-long Accurate Ranging

1.2km~15km optional, ± 1 m high precision, suitable for multiple scenarios

► Eye-safe Certification

Class I eye-safe certification, compliant with international certification standards

► Wide Temperature Environment Adaptation

-20°C - 70°C, wide temperature operation, impact resistance/seismic design adapts to harsh scenarios

► Extremely Lightweight and Low Power Consumption

Compact structure, ultra-low power consumption, easy system integration

► Stable Performance in Complex Environments

Adaptable to complex application scenarios such as rain, fog, and strong light, and stable output in harsh environments

► Plug-and-play Development

The standard interface is compatible with mainstream devices and provides host computer software and communication protocol



Commercial Drone



Handheld Ranging Equipment



Security Gimbal



Engineering Ranging



Multispectral Telescope

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Laser Ranging Modules

Laser Ranging Modules

Product Series

- Product Model
- Basic Features
- Laser Wavelength
- Eye Safety Level
- Laser Divergence Angle
- Ranging Performance (Buildings)
- Ranging Performance (2.3 × 2.3 m Vehicles)
- Ranging Frequency
- Ranging Accuracy
- Accurate Measuring Rate
- False Alarm Rate
- Multi-target Detection
- Electrical Indicators
- Communication Interface
- Operating Power Consumption
- Physical Properties
- Weight
- Dimensions
- Shock
- Vibration
- Environmental Adaptability
- Operating Case Temperature
- Storage Case Temperature

																											
SR Series												LM Series															
SR1000 mini				SR1200				SR2000				LM3000 mini				LM3000				LM6000				LM8000			
905nm±10nm												1535nm±5nm															
Class 1(IEC 60825-1)				Class 1(IEC 60825-1)				Class 1(IEC 60825-1)				Class 1 (IEC 60825-1)															
≤6mrad				2.5×5mrad								~0.6mrad								~0.3mrad							
2~1200m				2~2000m				10~4000m				15~4200m				20~7100m				20~10000m							
				/				10~3000m				15~3000m				20~6000m				20~8000m							
1~5Hz												1~10Hz (adjustable)															
±1m				d≤800m: ±(0.4m+d×0.07%)m d>800m: ±1m																±1m							
≥98%												≥98%															
≤1%												≤1%															
/												Up to 3															
UART(TTL_3.3V)												UART (TTL_3.3V)															
≤0.6W@25°C				≤0.50W@25°C				≤0.70W@25°C				≤1.5W@10Hz				≤2.5W@10Hz				≤3.5W@10Hz							
6g±1g				10.5g±0.5g								14.2g±1g				32g±1g				58g±1g							
26.5mm×17.5mm×10.5mm				26mm×25mm×14mm								27mm×25mm×15.5mm				48mm×31mm×21mm				65mm×48mm×32mm							
1200g, 1ms												1200g, 0.3ms												75g 6ms			
5~50~5 Hz, 1 octave/min, 2.5g												5~50~5 Hz, 1 octave/min, 2.5g												0.01~0.04g2/Hz,20~2000Hz			
-20°C~+70°C												-20 °C~ +70°C															
-25°C~+75°C												-20 °C~ +75°C															

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Laser Ranging Modules

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LR Series		
LR12000		LR15000
1535nm±5nm		
Class 1/1M		
~0.3mrad		
50~16000m		100~20000m
50~12000m		100~15000m
1~10Hz (adjustable)		
±2m		
≥98%		
≤1%		
Up to 3		
UART (TTL_3.3V)		RS422
≤3.5W@10Hz		≤5W@5Hz
127g±2g		≤ 290g
82mm×58mm×47mm		92mm×60mm×74mm
75g 6ms		
0.01~0.04g ² /Hz,20~2000Hz		
-20°C~ +70°C		-40°C~ +65°C
-20°C~ +75°C		-55°C~ +75°C

Exporting to Over 100 Countries and Regions

A sales footprint across Asia, North America, Europe, South America, Oceania, and Africa, backed by a marketing network in over 100 countries to deliver quality products and solutions to global customers



Market Coverage **100+** Countries and Regions

- Asia
- Europe
- North America
- South America
- Oceania
- Africa