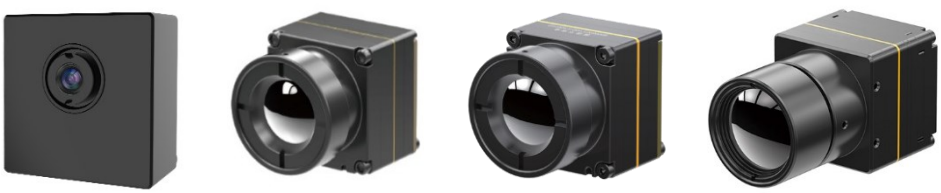
SIMTRUM

Uncooled Thermal Modules

STiLC / STiTL / STWIN Series



2022 V1

For customized projects please Contact us:

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STiLC212 - iLC Series 256x192 VOx Uncooled Thermal Modules

Oriented for optimal Size-Weight-and Performance-Cost (SWaP-C), the STiLC212 thermal module delivers sharp, smooth thermal image and provides various standard interfaces to facilitate the secondary development of our customers. Its cost control accelerates the popularization of thermal imaging technology in the consumer industries, such as Community Fireproof & Theftproof, Smart Building, Smart Breeding, Home Care, etc.

✓ Optimal SWaP-C

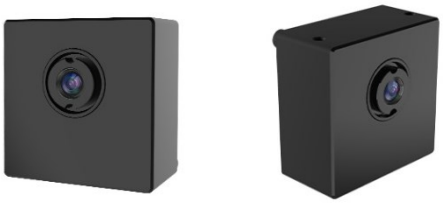
- Reduced cost: self-developed WLP 256x192/12um infrared detector with high annual output
- Miniature size: 21mm x 21mm x 12.8mm (with 3.2mm lens)

✓ Intelligent & Precise

- Powerful processing algorithm: NUC, 3DNR, DNS, DRC, EE
- Non-contact temperature measurement with a range of -20℃ to 150 ℃ and remarkable accuracy of ±3℃ or ±3%

✓ Easy Integration

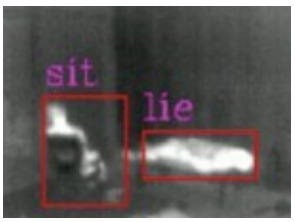
- Provide Windows/Linux SDK
- Various interfaces: 30pin-HRS/RS232-TTL/USB2.0/GPIO
- Digital video output: RAW/YUV/BT656



STiLC212R

STiLC212R-P

Applications



Specifications

Model	STiLC212R	STiLC212R-P
IR Detector Performance		
Sensitive Material	Vanadium Oxide	
Resolution	256×192	
Pixel Size	12μm	
Spectral Response	8μm ~14μm	
Typical NETD	≤45mK	
Image Processing		
Frame Rate	25Hz/30Hz	
Start-up Time	3s	
Digital Video	RAW/YUV/BT656	
Image Algorithm	Non-uniformity Correction (NUC) 3D Noise Reduction (3DNR) 2D Noise Reduction (DNS) Dynamic Range Compression (DRC) Edge Enhancement (EE)	
Image Display	Black Hot/White Hot/Pseudo Color	
PC Software		
ICC Software	Module Control and Video Display	
Electrical Characteristics		
Standard External Interface	30Pin_HRS: DF40C-30DP-0.4V(51), (HRS, Male)	
USB Extension Board	Type-C	
Communication Interface	TTL-RS232/USB2.0	
Digital Video Interface	CMOS8/USB2.0	
Supply Voltage	3.3V±0.1V VDC	
Typical Power Consumption	0.7W	
Temperature Measurement		
Operating Temperature Range	-10℃ to 50℃	
Temperature Measurement Range	-20℃ to 150℃; Support Customization and Expansion	
Temperature Measurement Accuracy	Greater of ±3℃/±3% (@23℃±3℃) Temperature Measurement Distance is 1.5m	Greater of ±8℃/±8% (@23℃±3℃) Temperature Measurement Distance is 1.5m
Regional Temperature Measurement	Support Maximum, Minimum and Average Value of the Output Regional Temperature	
SDK	Windows / Linux/ARM; Achieve Video Stream Analysis and Conversion from Gray to Temperature	
Physical Characteristics		
Size (mm)	21×21×12.8 (With 3.2mm Lens)	21×21×17.4 (With 3.2mm Lens)
Weight	8.6g±1g (With 3.2mm Lens)	13g±1g (With 3.2mm Lens)
Installation Interface	M1.6x3.3; Two Interfaces / Surface; 2 Surfaces in Total	
Environmental Adaptability		
Operating Temperature	-40℃ ~ +70℃	
Storage Temperature	-45℃ ~ +85℃	
Humidity	5%~95%, non-condensing	
Vibration	5.35grms, 3-axis	
Shock	Half Sine Wave, 40g/11ms, 3-axis, 6-direction	
Certification	ROHS2.0/REACH	
Optics		
Optional Lens	3.2mm/F1.1; HFOV: 55.6±2.8°; Coating: AR; Fixed Athermal	
Protection Level	/	IP67

STiTL612 – STiTL Series 640x512 VOx Uncooled Thermal Modules

The STiTL612 uncooled thermal module is small in size and light in weight, which provides a reliable solution for infrared system integration with limited space. Its compact structure has reached the ultimate level of the same specification module. It is specially developed for the field of electric power inspection, photovoltaic inspection, environmental protection detection, scientific research, aerial photography, police investigation, disaster relief & rescue, forest fire prevention, urban safety, etc.

✓ Compact & Lightweight Design

- Size: 21mm x 21mm x 13.5mm
- Weight: <20g (with 9.1mm lens)
- Low power consumption as low as 0.7W

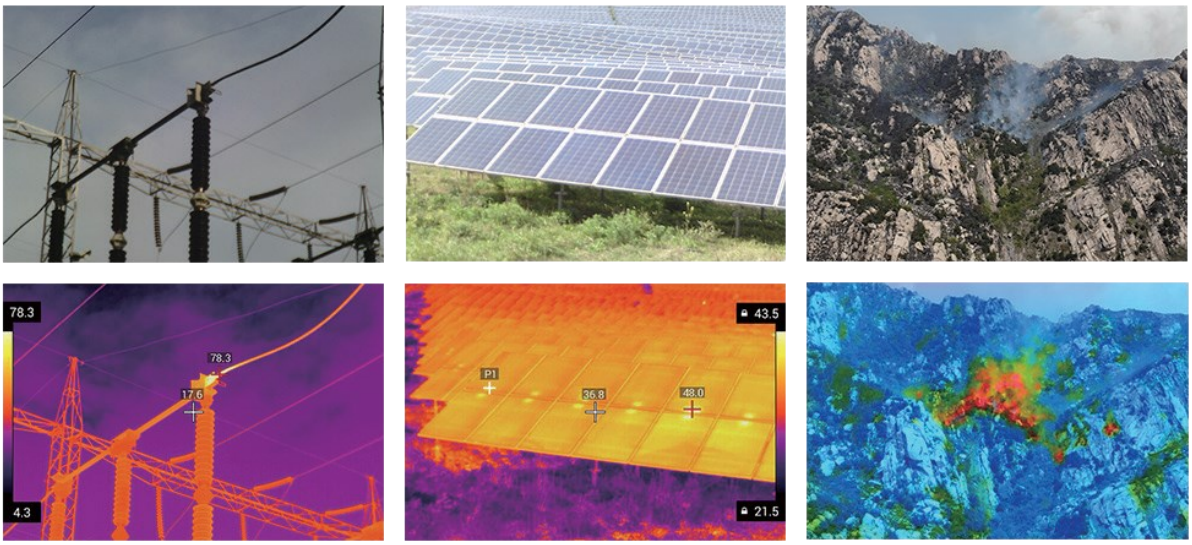
✓ Clear Image & Accurate Radiometry

- Brand new image process algorithm: NUC/3DNR/DNS/DRC/EE
- Regional, point & isotherm temperature measurement

✓ Common Interfaces for Easy Integration

- Support Windows/Linux SDK
- DVP/LVDS/USB2.0 interfaces, RAW/YUV image data output, serial port control

Applications



Specifications

Model	STiTL612/R
IR Detector Performance	
Sensitive Material	VOx
Resolution	640x512
Pixel Size	12μm
Spectral Response	8~14μm
Typical NETD	≤40mk
Image Processing	
Frame Rate	30Hz
Start-up Time	5s
Digital Video	RAW/YUV/BT656
Image Algorithm	Non-uniformity Correction (NUC) 3D Noise Reduction (3DNR) 2D Noise Reduction (DNS) Dynamic Range Compression (DRC) Edge Enhancement (EE)
Image Display	Black Hot/White Hot/Pseudo Color
PC Software	
ICC Software	Module Control and Video Display
Electrical Characteristics	
Standard External Interface	30Pin_HRS: DF40C-30DP-0.4V(51), (HRS, Male)
USB Extension Board	Type-C
Communication Interface	RS232-TTL/USB2.0
Digital Video Interface	CMOS8/USB2.0
Supply Voltage	3.3V±0.1V VDC
Typical Power Consumption	0.7W
Temperature Measurement	
Operating Temperature Range	-10°C to 50°C
Temperature Measurement Range	-20°C to 150°C, 0°C to 550°C; Support Customization and Expansion
Temperature Measurement Accuracy	Greater of ±3°C or ±3% (@23℃±3℃)
Regional Temperature Measurement	Support Maximum, Minimum and Average Value of the Output Regional Temperature
SDK	Support Windows/Linux/ARM; Achieve Video Stream Analysis and Conversion from Gray to Temperature
Physical Characteristics	
Size (mm)	21×22.3×27.3 (With 9.1mm Lens)
Weight	20.8g±1.5g (With 9.1mm Lens)
Installation Interface	/
Environmental Adaptability	
Operating Temperature	-40°C to 70°C
Storage Temperature	-45°C to 85°C
Humidity	5% to 95%, Non-condensing
Vibration	5.35grms, 3 Axis
Shock	Half-sine Wave, 40g/11ms, 3 Axis 6 Direction
Certification	ROHS2.0/REACH
Optics	
Optional Lens	Fixed Athermal: 9.1mm

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STWIN Series Uncooled Thermal Modules

STWIN series uncooled thermal modules integrate the self-developed ceramic package infrared detector, high-performance signal processing circuit and enhanced image algorithm to output clear, sharp images and accurate temperature data. Its compact design and lightweight structure could satisfy customers' strict integration requirements on size, weight and power consumption.

STWIN612 integrates a 640x512/12um ceramic package uncooled infrared detector. With typical NETD < 40mk, the STWIN612 thermal module could present a clearer, sharper and more detailed image.

STWIN412 uses 384x288/12um ceramic package infrared detector. The thermal module supports 11 pseudo-color in total (White Hot/Lava/Ironbow/Aqua/Hot Iron/Medical/Arctic/Rainbow1/Rainbow2/Red Hot/Black Hot). Different industries have different color palette choices.

✓ Optimal SWaP-C

- Size: 25.4x25.4x35mm (without lens)
- Light weight: 25g (without lens)
- Power consumption as low as 0.8W

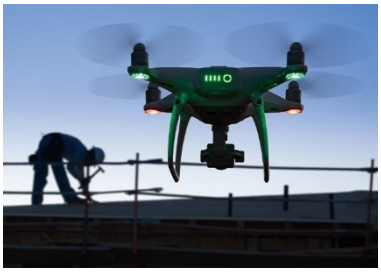
✓ Outstanding Performance

- Powerful image process algorithm: NUC/3D/2D/DRC/EE
- Temperature measurement accuracy: ±2℃ or ±2%
- Temperature measurement range: -20℃ to 150 ℃, 0 to 550 ℃ (customizable)

✓ Strong Universality

- Image data output: YUV/BT.656/LVDS/USB2.0
- Support Windows/Linux SDK; achieve video stream analysis and conversion from gray to temperature.
- Good stability in various harsh environments

Applications



Specifications

Model	STWIN612/R	STWIN412/R
IR Detector Performance		
Resolution	640×512	384×288
Pixel Size	12μm	
Spectral Response	8~14μm	
Typical NETD	< 40mK	
Image Processing		
Frame Rate	25Hz/30Hz	
Start-up Time	6s	
Digital Video	YUV/BT.656/LVDS/USB2.0	
Analog Video	PAL/NTSC	
Image Algorithm	NUC/3D/2D/DRC/EE	
Image Display	11 in Total (White Hot/Lava/Ironbow/Aqua/Hot Iron/Medical/Arctic/Rainbow1/Rainbow2/Red Hot/Black Hot)	
Electrical Characteristics		
Standard External Interface	50pin_HRS	
Communication Interface	RS232/USB2.0	
Supply Voltage	4~5.5V	
Typical Power Consumption	0.8W	
Temperature Measurement		
Operating Temperature Range	-10℃ to 50℃	
Temperature Measurement Range	-20℃ to 150℃, 0℃ to 550℃	
Temperature Measurement Accuracy	Greater of ±2℃ or ±2%	
SDK	Windows/Linux; Achieve Video Stream Analysis and Conversion from Gray to Temperature	
Physical Characteristics		
Size (mm)	25.4×25.4×35 (Without Lens)	
Weight	25g (Without Lens)	
Environmental Adaptability		
Operating Temperature	-40℃ to 70℃	
Storage Temperature	-45℃ to 85℃	
Humidity	5% to 95%, non-condensing	
Vibration	5.35grms, 3 Axis	
Shock	Half Sine Wave, 40g/11ms, 3 Axis, 6 Direction	
Optics		
Optional Lens	Fixed Athermal: 13mm	

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