InfiRay

Temperature Measurement Product

Clear and Accurate, IRay

■ This manual is illustrative only. Technical specifications are subject to change without prior notice.

Sample No.CW2020Y004　Printing time: Jan. 2021

WeChat Official Account　　Official Website
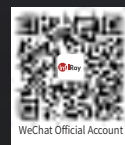
Authorized IRay Distributor:

High sensitivity

Digital output

SWaP-C
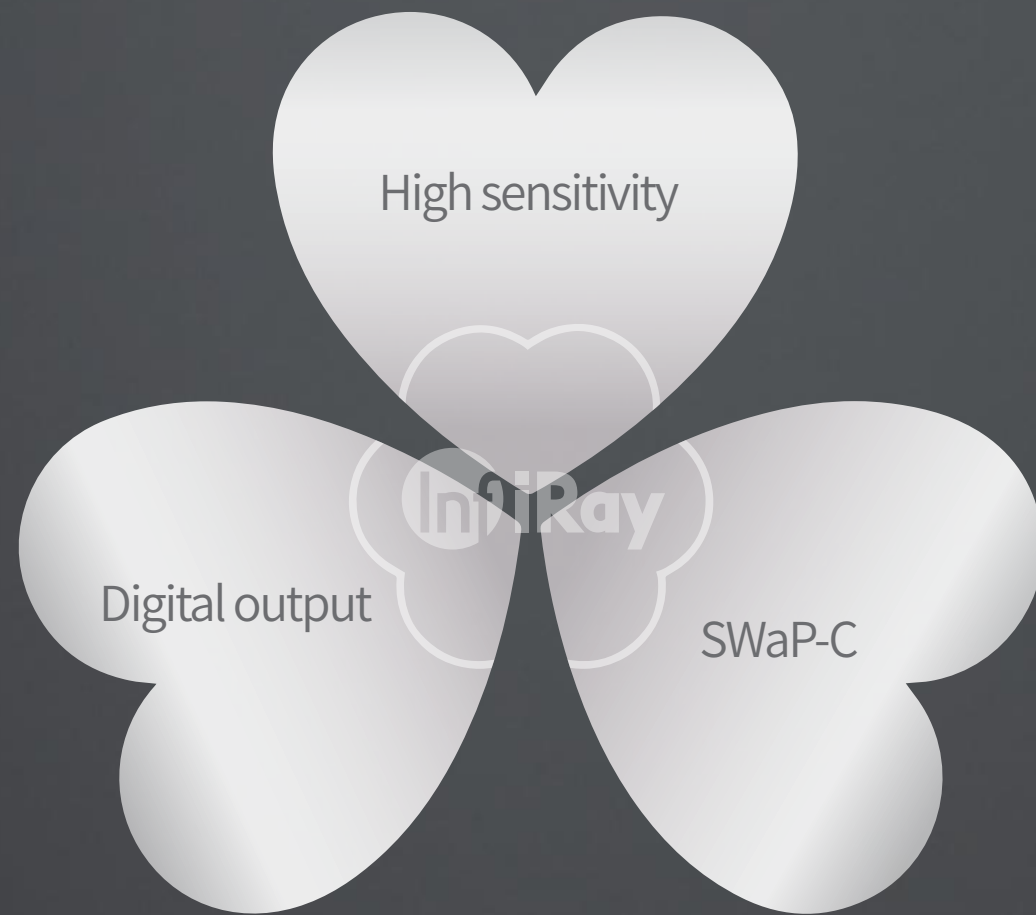
Company Profile

IRay Technology Co., Ltd. concentrates on developing and manufacturing thermal imaging technologies and products with completely independent intellectual property rights. IRay is committed to providing global customers with professional thermal imaging products and solutions. The main products include IRFPA detectors, thermal imaging modules, and terminal products.

With R&D personnel accounts for 47% of all employees, IRay owns 605 authorized and accept intellectual properties: 478 authorized and accept patented technologies in China (including integrated circuit chip, the design and manufacture of MEMS sensor, Matrix III image algorithm and intelligent precise temperature measuring algorithm), 12 authorized and accept patented technologies overseas, 78 software copyrights, and 37 integrated circuit designs.

IRay products have been applied in various fields, such as disease prevention and control, industrial temperature measurement, surveillance and fire protection, outdoor observation, automatic driving, IoT, AI, and machine vision.

InfiRay Optoelectronic Industry Chain
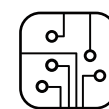
Integrated Circuit Design   FPA Sensor Array Design   Detector Packaging and Testing   Infrared Imaging Modules Assembling   Terminal Applications

Explore
Perceive the Future

2010-2011	2012-2014	2015	2016	2017	2018	2019	2020

IRay was established in Yantai, Shandong Province, China (2010)

IRay's industrial production of infrared detector was listed as the First Strategic Emerging Industry Projects in Shandong Province (2011)

Released 384×288 35μm uncooled infrared FPA detector (2012)

Released 640×512/384×288 25μm uncooled infrared FPA detector (2013)

Released 640×512/384×288 20μm uncooled infrared FPA detector

Released 640×512/384×288 17μm high-performance uncooled infrared FPA detector

Released 25mm×25mm VGA Micro series module

Released 1024×768 14μm uncooled infrared FPA detector with large array, high sensitivity, and high resolution

Released 640×512/384×288 17μm ultra-sensitive uncooled infrared FPA detector (NETD≤30mK)

Released 640×512 17μm wide-spectra (3~14μm) uncooled infrared FPA detector

Released WLP (wafer level packaging) uncooled infrared FPA detector

Released 640×512 12μm uncooled infrared FPA detector (ceramic packaging & digital output)

Released 12μm megapixels uncooled infrared FPA detector (ceramic packaging & digital output)

Released the Nano series module (Power consumption≤0.5W & Weight ≤15g)

Released the 1st 1280×1024 10μm VOx uncooled infrared FPA detector in China

Released 256×192 12μm WLP (wafer level package) sensor and imaging module

Released 12μm high-accuracy temperature measurement

Released IRay's first VOx shutterless module

Released 12μm thermal imaging monocular/binocular for outdoor application

Released world's first megapixel temperature measurement thermal camera - AT1280

Released series of handheld and online temperature measurement thermal cameras

Achieved mass production of a full series of thermal imaging modules equipped with self-developed ASIC image processing chips

Tianshu Series
Handheld Thermal Camera

200 270 340
130 410
60 480
-20°C~+550°C
-20 550

InfiRay
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InfiRay
InfiRay

See difference

Tianshu Series Handheld Thermal Camera adopts the infrared detector with nearly 50000 pixels. It has wide temperature range (-20 ℃~+550 ℃), infrared+visible light fusion, 7 pseudo colors+4 image modes, 11h working time, IP54 protection grade, and 2m drop-proof. All these advantages can fully meet the various application needs of electrical diagnostics, machinery/equipment maintenance, building inspection, property and household, and other occasions. It is easy to use, professional, and efficient.

CE RoHS dgm FC KC

1
An Ultra-performance, hot spot spoting tool

- 0.05℃ Thermal sensitivity

  Ultra thermal sensitivity makes tiny abnormal temperature clearly visible. Tianshu C series is also suitable for the inspection of building quality, material defect, and precision devices.

- -20℃~+550℃ Wider range suitable for more scenarios

  From HVAC to automotive maintenance, One good temperature measuring tool is enough.

- Benefit from high resolution and sensitivity

  Application scenarios can be expanded to product development and process testing.

- 256×192 With nearly 50,000 temperature measurement pixels

  It can output clear thermal images to pinpoint the fault at a glance. It can achieve accurate search, getting rid of fuzzy images.
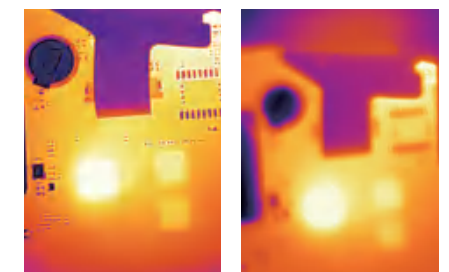
Clear image obvious details

Blur image lost details

2

Better Performance，
Faster inspection

- **Dual vision   Visible light fusion**

  Infrared/visible light/dual vision fusion/ picture-in-picture mode can easily compare and Locate hot spot. Up to 7 plates are adaptive to more scenes;

- **11h ultra-long battery Life**

  With the Type-C charging interface, it is fully charged in 4h. With 11h battery life, it is ready to use with no-worry power supply;

- **Auto tracking of highest and lowest-temperature points**

  The highest/lowest temperature point could be displayed real-time on screen for easy trouble shooting, also the alarm threshold could be set.

- **56° FOV** Focus-free design with large FOV

  Inspection in a narrow space has never been more easy. It can cover the entire electric cabinet at 1m distance and scan 10m^2 indoor floor at one glance

56°
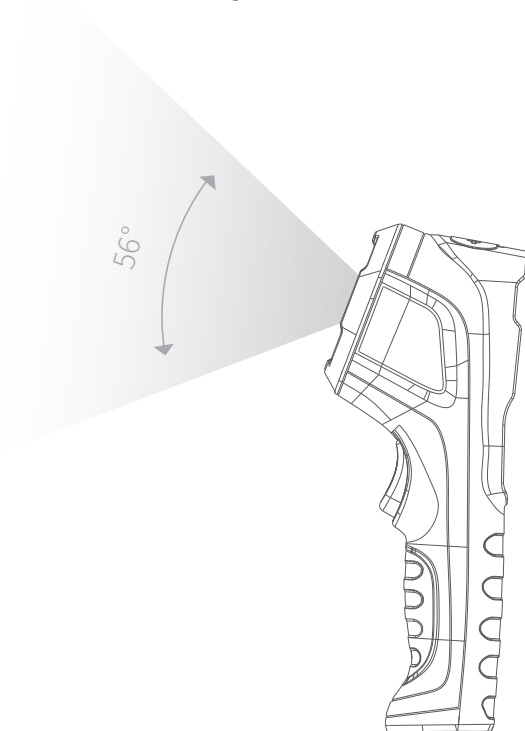
3

Friendly interaction,
simple design with rich functions

- **5 buttons Easy operation, pick and scan**

  Measure temperature with ultra easy button navigation, no additional training needed, just unbox and power up.

- **Ergonomic body design, ultra comfortable to grab**

  Its camera trigger has perfect radius with the non-slip texture for better touch. Made of two-color injection molding environmental protection material, the first impression after picking it up is comfortable.

- **Support PC offline temperature analysis**

  The backstage supports professional temperature analysis and image optimization, and the analysis report can be formed with one click.

- **Compact and Robust**

  Design of IP54 encapsulation and 2m drop-proof.

Screen
Gallery
Escape
Power
Navigation
LED flash light

Snapshot trigger

LED light
Used for dark environments
Infrared lens

visible light lens

Application Fields

Machinery maintenance   Product testing   Automotive maintenance   HVAC maintenance   Electrical diagnosis

Main Specifications

Model	C100	C200
Detector Type	VOx uncooled infrared FPA detector	
Resolution	160×120	256×192
Spectral Band	8～14 µm	
Pixel Pitch	12 µm	
NETD	<50mK	
Frame Rate	25Hz	
FOV	35.3°×26.7°	56°×42.2°
IFOV	3.8mrad	3.8mrad
Focusing Mode	Focus-free	
Measuring Range	-20 °C～ +550 °C	
Temperature Measurement Accuracy	±2°C or ±2% of the reading (the larger one shall prevail)	
Measurement Tools	Central Spot measurement/Hotspot and cold spot tracing	
Image Modes	Thermal imaging, fusion, PIP, visible imaging	
Palette	7	
Temperature Alarm	Full frame high/low temperature alarm	
Alarm Mode	Support image and LED alarm	
Photo Function	Support, with temperature data	
Secondary Analysis	Provide PC analysis software for secondary analysis of data	
Screen Size	2.8LCD（320×240）	
Lighting	LED fill-in light	
Storage	Standard 16GB SD card, supporting expansion	
Tripod Support	Yes, at the bottom of the handle	
Operating Time	11h, @25°C indoor	
Charging Time	About 4h, @25°C indoor	
Dimension	237×75×92mm	
Weight	520g	
Operating Temperature	-10°C~+50°C	
Storage Temperature	-20°C~+60°C	
Operating Humidity	Relative humidity 10%~95%, non-condensing	
Drop Protection	2m	
IP Encapsulation	IP54	

Tianxuan Series
Handheld Thermal Camera

Tianxuan Series Handheld Thermal Camera comes with 384×288 VOx infrared detector and the optimized circuit, Matrix III intelligent image processing algorithm, and patented temperature measurement algorithm. It provides clearer thermal images and more accurate and stable temperature data. Also, it is equipped with an intelligent touch screen, manual focusing lens, dual vision, and various built-in analysis functions, to ensure accurate test results and efficient analysis and diagnosis.

CE   RoHS   dgm   FC

■ Check clearly, Solve quickly

1
Even more powerful performance
Makes M300 to greater

- With 384×288 thermal resolution, thermal sensitivity of 0.05℃, and 44 ° FOV, M300 can display rich details that low resolution products cannot, and makes sure the abnormal temperature targets were not missed.

- Manual focusing provides clear images of targets from far to near. Especially for observing tiny near targets.So the lens equiped on M300 is close to the quasi macro level, tiny targets at the size of 1mm (at the distance of 0.1m) can be distinguished.

- It supports customized point/line/area temperature analysis. By simply clicking and dragging your finger on the touch screen, you can find the abnormal temperature of your interest on the thermal image. The intuitive feedback is simple and clear.

- It has a wide measurement range of -20℃~+550℃. From building detection to vehicle maintenance, it is adaptive to various scenes and purposes. There is no need to switch equipment, to save costs and improve efficiency.

- It has powerful image fusion functions. With a 5 million pixels digital camera, it can provide more comprehensive and richer information, easier for observation under complex conditions.

Screen

Cancel

Gallery

Power

Navigation

OK

Camera Trigger

Laser pointer

Visible light lens

Infrared lens

3
Professional design, expert's choice, choose to be an expert

- It supports both screen-touch and button operation. The touch panel is clear to see, easy to use, and convenient to analyse the data. The physical buttons are user-friendly, and convenient to operate with gloves.

- The operation interface is clear and user friendly. It can be easily operated without training.

- It needs only one button to take photos or videos. Voice annotation is supported to perfectly restore the scene and simplify the complicated work procedures.

- The large capacity 4500mAh battery in M300 is designed to be quickly detachable . Each M300 is shipped with two batteries and a charging dock, to meet heavy daily usage.

- 3.5-inch LCD high definition (640×480) capacitive touch screen, with adjustable screen brightness, is more convenient for observation and analysis.

- Compact and robust design with IP54 protection and 2m drop-proof. all these are to ensure you can work without worry.

- Dual modes support hand-held operation and fixed operation on the tripod, flexible and reliable.

- Laser pointer can locate targets quickly and accurately, improving inspection efficiency.

- Built-in high/low-temperature alarm supports user-defined alarm temperature.

2
Intelligent analysis. Discover more, within the image

- Support WiFi transmission. After connected to mobile phone APP, it can analyse and share thermal images and temperature data at any time and anywhere.

- Intelligent PC analysis software supports the resetting of the measurement parameters. Click to form the detection report, convenient for data sorting, analysing, and mining.

Application Fields
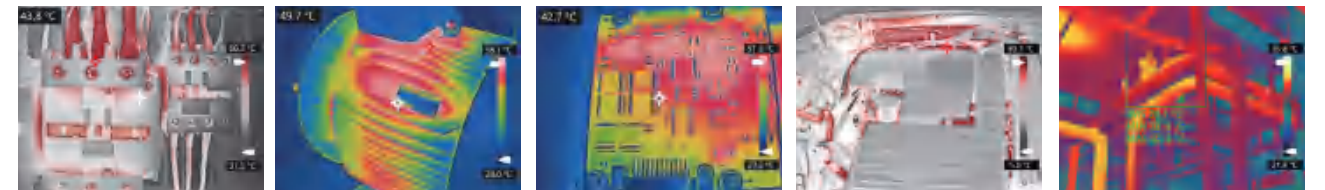
Electrical diagnosis   Machinery maintenance   Product assessment   Automotive maintenance   HVAC maintenance

Main Specifications

Model	M300
Detector Type	VOx Uncooled infrared FPA detector
Detector Resolution	384×288
Spectral Band	8~14μm
Pixel Pitch	12μm
NETD	<50mK
Frame Rate	25Hz
FOV	43.7°×31.9°
IFOV	1.98mrad
Focusing Mode	Manual focusing
Measuring Range	-20 ℃～+550 ℃
Temperature Measurement Accuracy	±2℃ or ±2% of the reading (the larger one shall prevail)
Measurement Tools	Central spot measurement/Hotspot and cold spot tracing
Image Modes	IR, Visible, PIP,Fuse
Palette	7
Temperature Alarm	Full frame high/low temperature alarm
Secondary Analysis	Equipped with PC and app analysis software for secondary analysis of data
WiFi	Support WiFi data transmission
Screen Size	3.5" LCD (640×480) touch screen
Laser	Laser pointer
Storage	Standard 32GB SD card
Tripod Support	Yes, at the bottom of the handle
Operating Time	4h, @25℃ indoor
Charging Time	About 3h, @25℃ indoor
Weight	670g
Dimension	256.4×105.1×105.3mm
Operating Temperature	-10℃~+50℃
Storage Temperature	-20℃~+60℃
Operating Humidity	Relative humidity 10%~95%, non-condensing
Drop Protection	2m
IP Encapsulation	IP54

AT Series Automatic Focusing Online Temperature Measurement Thermal Camera AT31/61/1280

AT31/61 is equipped with a compact professional electric focusing lens, which adds flexibility for using & installing and makes it adaptable to more targets. It is equiped with our self-developed high performance, high resolution, and high sensitivity VOx detector. Combined with the Matrix III patented image algorithm, intelligent temperature measurement algorithm, the temperature measurement result is more accurate and reliable, providing professional customers with more comprehensive and accurate thermal imaging products and solutions.

AT1280 1.3 megapixel infrared temperature measurement, camera breaks the ceiling of infrared temperature measurement vision, entering a new era of megapixel thermal camera.

1

AT31/61 -- Accurately transmit on-site temperature data

- Provide various compact electric focusing lenses selection to meet different field & depth of view requirement. Provide more accurate temperature and output high-quality thermal images.

- 50Hz frame rate and Gigabit Ethernet interface support real-time transmission of on-site temperature data.
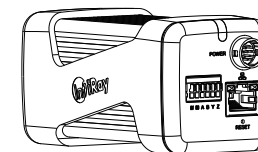
- -20℃~+550℃ wide range temperature measurement makes it possible to monitor more industrial targets requiring high-temperature measurement.

- Patented intelligent temperature compensation algorithm greatly improves measurement accuracy and adding convenience for engineers to pinpoint and troubleshoot the failure.

2

The combination of hardware and software innovation makes AT31 / 61 your ideal powerful equipment

- Multiple network protocols such as TCP, UDP, ICMP, and DHCP, can achieve real-time temperature monitoring and abnormal warning. Compatible with protocols such as ONVIF, GB28181, and GenlCam provide convenience for on-site installation and sharing analysis and alarm results.

- Automatic focusing makes field test and application more convenient.

- Displaying more Test results of spots,Lines,and areas provides an easier way for obtaining back-end temperature data and makes the application more flexible and convenient, reducing the cost of use.

- Provide SDK and PC software to support customized secondary development Improve practicality and feasibility to form your unique advantages to customer .

- Comply with RoHS, CE, and other EU Environment-Protecting Directives, bring no worry for export.

1.3 million pixels high-definition thermal imager

Resolution	384×288					640×512					
Lens(mm)	7.8	13	15	19	25	7.8	10.6	13	15	19	25
FOV（H×V）	47°×35.6°	29.6°×22°	25°×18.7°	19.6°×14.7°	14.8°×11.1°	62.4°×50.9°	49.3°×39.2°	39.6°×31.6°	34.2°×27.4°	26.5°×21.3°	20.3°×16.3°
IFOV	2.17mrad	1.3mrad	1.1mrad	0.89mrad	0.68mrad	1.79mrad	1.32mrad	1.07mrad	0.93mrad	0.73mrad	0.56mrad

3

1.3 megapixel infrared temperature measurement,
A whole new thermal world waiting to be explored.

- Most advanced REAL 1.3-megapixel infrared temperature measurement contributes to the future;

- 1280×1024 full-picture temperature measurement thermal imager, providing rich temperature details, can easily cope with large area temperature measurement application of key nodes;

- Can be used in core power equipment inspection, large-scale oil and chemical engineering equipment monitoring, high-precision scientific research test and evaluation. Break through the ceiling of infrared temperature measurement imaging and enter the new stage of megapixel.

Application Fields

Electrical inspections Petrochemical equipment monitoring Automatic control Firefighting surveillance R&D test and evaluation

Main Specifications

Model	AT31	AT61	AT1280
Detector Parameters			
Detector Type	VOx uncooled infrared FPA detector		
Resolution	384×288	640×512	1280×1024
Frame Rate	50Hz	25Hz(30Hz Optional)	15Hz(30Hz Optional)
Temperature Measurement Performance			
Measuring Range	-20℃～+150℃，0℃~+550℃		
NETD	<50mk @25℃,F1.0(<40mk Optional)		
Measurement Accuracy @Environment Temperature -20℃~60℃	±2℃ or ±2% of the reading (the larger one shall prevail)		
Temperature Measurement Tools	Comprehensive analysis of temperature Professional temperature analysis software It can be seen and analyzed		
Ethernet			
Network Protocol	TCP、UDP、ICMP、DHCP、RTSP		TCP、UDP、ICMP、DHCP、RTSP、GigE
Network Interface	RJ45		
Image Adjustment			
Brightness and Contrast Adjustment	Manual/Auto 0 (defaulted)/Auto 1		
Polarity	Black hot/White hot		
Palette	Support 18 palettes		
Image Flip	Horizontal/Vertical/Diagonal Mirror Image		
Area-of-interest	Support		
Lens			
Focal Length	7.8mm/10.6mm/13mm/15mm/25mm		19mm
Lens Control	Support auto/manual focusing		
Power Interface			
Power Voltage	10~36V DC		10~16V DC
Typical Power Consumption @25℃	≤3W	≤3.3W	≤6W
Power Protection	Support overvoltage, undervoltage, and reverse connection protection		
Physical Characteristics			
Dimension	55×55×119（mm）(L×W×H)		62×70×130（mm）(L×W×H)
Environment Adaptability			
Operating Temperature	-20℃～+70℃		-10℃～+60℃
Storage Temperature	-45℃～+85℃		-20℃～+65℃
Impact	30g, 11ms, all axials		
Vibration	4.3g, random vibration, all axials		
Humidity	5%~95%, non-condensing		
Software Support			
SDK	Support		
PC Software	Support		
Environmental Directives			
RoHS2.0	Support		
CE	Support		

AT Series Fixed Focusing Online
Temperature Measurement Thermal Camera AT31F/61F

■ Observe and analyze the thermal world

1 Excellent configuration, more usable than ever

- It is specially optimized for network. One or multiple cameras can be controlled at the same time with our professional PC software, reducing the application cost.

- -20°C~+550°C wide range temperature measurement makes it possible to monitor more industrial targets requiring high-temperature measurement.

- It provides lenses of various optional focal lengths. It can output high-quality infrared images and meet the detecting requirements for space-restricted areas and small targets.

2 Dedicated support, work together to form your exclusive advantage

- Provide Windows/Linux/Android SDK to support users' secondary development and improve practicality to form customer advantages.

- Displaying more point, line, and area test results provides an easier way for obtaining back-end temperature data and makes the application more flexible and convenient, reducing the cost of use.

- Support alarm function and provide abnormal alarm (I/O output, log, image storage, file sending (FTP), E-mail (SMTP);
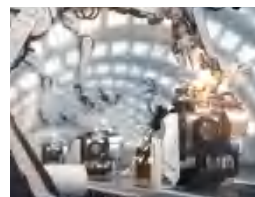
Resolution	384×288							
Lens(mm)	4	6.2	9.7	13	19	25	35	50
FOV(H×V)	90.3°×60.7°	61.5°×45.7°	37.9°×28.7°	20.1°×15.1°	19.5°×14.7°	14.9°×11.2°	10.6°×8°	7.4°×5.6°
IFOV	4.250mrad	2.742mrad	1.753mrad	1.308mrad	0.895mrad	0.680mrad	0.486mrad	0.340mrad
Resolution	640×512							
Lens(mm)	4.1	5.8	9.1	13	19	25	35	55
FOV(H×V)	89°×75°	70°×57°	48°×38°	33°×26°	22°×18°	17°×14°	12.5°×10°	8°×6.4°
IFOV	2.92mrad	2.06mrad	1.31mrad	0.92mrad	0.63mrad	0.48mrad	0.34mrad	0.21 mrad

3

Advanced interface, powerful and versatile

- 50Hz frame rate and Gigabit/Mbit/adaptive Ethernet interface support real-time transmission of on-site temperature data.

- Rich back-end interfaces can be directly connected to various monitoring systems for integration programs,for integration programs and is compatible with various PLC secondary development for automatic production, greatly reducing,greatly reducing the R&D cycle.

- Multiple network protocols, such as TCP, UDP, ICMP, and DHCP, can achieve real-time temperature monitoring and abnormal warning. Compatible with protocols, such as ONVIF and GB28181, it can provide convenience for on-site installation and share analysis and alarm results easily at the same time.
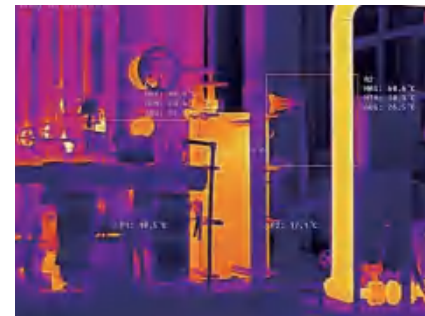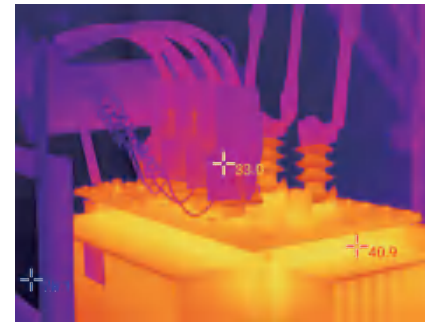
Application Fields

Industrial process control | Quality test | Equipment condition monitoring | Fire warning | R&D test and evaluation

Main Specifications

Model	AT61F	AT31F
Detector Parameters		
Detector Type	VOx uncooled infrared FPA detector	
Resolution	640×512	384×288
Pixel Pitch	12μm	17μm
Spectral Band	8~14μm	
NETD	<50mk @25℃,F1.0(<40mK Optional)	
Frame Rate	50Hz	
Image Adjustment		
Polarity	Black hot/White hot	
Palette	Support 18 palettes	
Temperature Measurement Performance		
Measuring Range	-20℃～+150℃, 0℃~+550℃	
High and low gain mode	High gain mode, low gain mode, and two modes automatic switching	
Temperature Measurement Accuracy	±2℃ or ±2% of the reading (the larger one shall prevail) @Environment Temperature -20℃~60℃	
Power		
Power Supply Range	9～26V DC	
Power Protection	reverse connection protection	
Typical Power Consumption @25℃	<3W	
Interface		
Analog Video Output	1 channel video	
Network Interface	RJ45 10M/100M/1000M self-adapted	
Alarm Interface	1 input, 1 output	
Network Protocol	Ethernet/IP, TCP, UDP, SNTP, RTSP, HTTP, ICMP, SMTP, DHCP, UPnP, PPPOE	
Ethernet	Control and transmit images	
Interface Protocol	Support customized ONVIF, GB28181	
Serial Communication Interface	Customizable RS-485, RS-232	
Compression Standard		
Video Compression Standard	H.264/H.265	
Video Format	mp4, mov	
Alarm		
Alarm Function	All temperature measurement points, the highest temperature, lowest temperature and average temperature in all temperature measurement areas can be configured with separate alarm outputs	
Alarm Output	I/O output, log, save image, file sending (FTP), email (SMTP), notification	
Physical Characteristics		
Weight(without lens)	<150g	
Dimension(without lens)	46.5×48×83 (mm)	
Environment Adaptability		
Operating Temperature	-20℃～+60℃	
Storage Temperature	-40℃～+70℃	
Humidity	5~95%, non-condensing	
Secondary Development		
Secondary Development	Provide Windows / Linux SDK and instruction	
Accessories		
Accessories	Interface cable	

LT Series Uncooled Thermal Imaging Module
for Temperature Measurement

LT Supplies more stable and reliable temperature measurement performance in the industry. It provides incomparable high-quality images, more stringent electrical performance, and richer data interface, suitable for applications with very strict requirements for thermal imaging core.

■ Smarter Machine Vision

1
High performance,
meet various future demands

- Self-developed VOx detector has high frame rate, high resolution, and high sensitivity.

- -20°C~+550°C wide range temperature measurement makes it possible to monitor more industrial targets requiring high-temperature measurement.

- Real-time full-frame temperature output ensures the measurement accuracy to be ±2°C or ±2%.

- Its double calibration modes support manual correction and automatic correction. Cooperated with patented intelligent temperature measurement algorithm, it ensures measurement accuracy and improves work efficiency.

- Provide various lenses to detect targets of different depth of field target in a single lens. Provide more accurate temperature and output high-quality thermal images.

2
Various electrical performance and
rich interface for wide application

- It has compact size, light weight, and is easy to install. It is applicable for space-restricted areas and brings no load on the equipment to be tested.

- Support standard USB interface (optional) to transmit real-time on-site temperature data, no need to connect the back-end with complex data cables.

- Support multiple image and temperature data output interfaces to achieve rapid transmission of image and temperature data and improve work efficiency.

3

Improve development efficiency with the support of professional software

- Provide Windows/Linux/Android SDK to support users' secondary development and improve practicality to form customer advantages.

- Professional analysis software displays more point, line, and area test results, providing an easier way for obtaining back-end temperature data and making the application more flexible and convenient while reducing the cost of use.
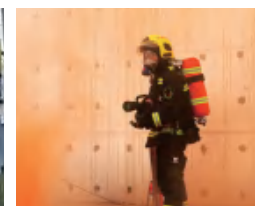
Application Fields

Industrial equipment   Electrical equipment   UAVs   Robots   Fire-fighting equipment, and hand-held thermal imagers

Main Specifications

Model	LT640P	LT640	LT384
Detector Parameters			
Detector Type	VOx uncooled infrared FPA detector		
Resolution	640×512		384×288
Pixel Pitch	12μm	14μm	17μm
Detector frame rate	30Hz		50Hz
Spectral Band	8~14μm		
NETD	<50mk@25℃,F1.0(<40mk Optional)		
Image Adjustment			
Brightness and Contrast Adjustment	Manual/Auto 0 (defaulted)/Auto 1		
Polarity	Black hot/White hot		
Palette	Support 18 palettes		
Digital Zoom	1.0~8.0×Continous Zoom (Step Size 0.1)		
Image Processing	Non-uniformity Correction, Digital Filtering Denoise, Digtial Detail Enhancement		
Mirror Image	Horizontal/Vertical/Diagonal Mirror Image		
Area-of-interest	Support		
Temperature Measurement Performance			
Measuring Range	-20℃～+150℃，0℃~+550℃（Optional)		
Gain Switch	High Gain/Low Gain/Auto Switch		
Temperature Measurement Accuracy	±2℃ or ±2% of the reading (the larger one shall prevail) @Environment Temperature -20℃~60℃		
Measurement Tools	10 Fixed Dots Measurement, Maximum/Minimum Temperature Dots Capture, Full Frame Measurement, Center Dot Measurement, 12 Line/Rectangle Analysis , Isotherm Analysis		
Measurement Settling Time	≤10s(Fastest)		
Temperature Correction	Manual/Auto		
Lens			
Lens	4mm、5.8mm、6.2mm、9.7mm、13mm、19mm、25mm、35mm、50mm		
Power			
Power Supply Range	USB; 45V DC/ Expansion Board Support 5~24V DC		
Typical Working Voltage	4V DC/Expansion Board Support 12V DC		
Boot Time	≤12s		≤3s
Power Protection	Overvoltage, Undervoltage, Reverse Connection (Adaptive Expansion Board)		
Typical Power Consumption @25℃	＜2W		
Interface			
Analog Video Output	1Channel (PAL)//NTSC		
Digital Video Output	USB，14 and10-bit LVDS-H/F		
Serial Communication Interface	RS-232/UART（3.3V)		
Physical Characteristics			
Weight (without lens)	＜76g		
Dimension (without lens)	44.5×43 (mm) (Width × height)		
Environment Adaptability			
Operating Temperature	-40℃~+80℃		
Storage Temperature	-45℃~+85℃		
Humidity	5~95%，non-condensing		
Vibration	4.3g，random vibration, all axials		
Impact	40g, 11ms, Final Peak Sawtooth Wave, 3 Axial 6 Direction		

Micro III Series Ultra-Compact
# High Accuracy Thermographic Module

Micro III professional thermographic module has great advantages of small size, light weight, and low power consumption, thanks to its special technique and optimized circuits. With Matrix III patented image algorithm and intelligent temperature measurement algorithm, it can provide temperature data with high accuracy. Rich interfaces and functions make it easier to use and integrate, providing new solutions for thermal imaging products in various industries.

■ Cherry chip, tiny titan

1

Cherry Chip, Tiny Titan

- It has ultra-small volume (26×26×22mm) and neat appearance. Its optical center coincides with geometric center overlap. And its cherry size adds convenience to integration.

- Its ultra-light weight (<20g) adds great power to light unmanned aircraft, small hand-held observation equipment, and machine vision equipment.

- Ultra-low power consumption (Full frame rate 50Hz, power consumption<900mW) brings great technical advantages, needless to worry about heat dissipation.
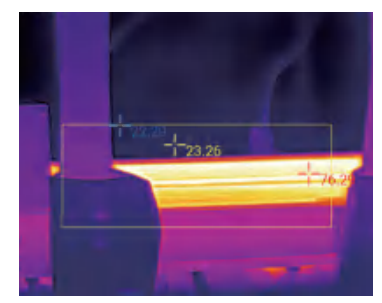
2

From range to accuracy, meet the demands of system integrators

- Wide range of temperature measurement (-20℃~+550℃) fits various industrial application scenarios.

- The high accuracy of temperature measurement (±3℃ or ±3%) can meet the requirements of temperature measurement application in various industrial scenes.

- With a high frame rate (50Hz), the video is smooth without lag when observing the target moving at high speed moving or with rapid temperature change, which improves detection efficiency and data reliability.

- With high sensitivity (0.05℃), it can distinguish more details and detect farther targets while providing HD images.

- With Matrix III intelligent image algorithm, it can ensure high image quality while outputting accurate temperature data.

3

Everything you need is already here.
Interfaces, different temperature
measurement modes, RoHS, SDK
for secondary development...

- Rich data interfaces (5 main types) adapt to more platforms, reducing the R&D cycle and costs.

- 6 temperature measurement modes to help engineers conduct more professional and comprehensive temperature analysis, without missing any abnormal temperature points.

- Comply with RoHS, no worry to export;

- Provide SDK and support user customization of language and reticle, improving practicality and forming customer advantage.

Application Fields

| Security monitoring | Night vision/ firefighting helmet | Light UAV | Patrol Robot | Handheld temperature measurement |

Main Specifications

Model		Micro III 640T	Micro III 384T
Detector Parameters			
Detector Type		VOx uncooled infrared FPA detector	
Resolution		640×512	384×288
Pixel Pitch		12μm	
Detector frame rate		25Hz	50Hz
Spectral Band		8~14μm	
NETD		≤50mK@25℃	
Image Adjustment			
Brightness and Contrast Adjustment		Manual/ Auto	
Palette		Support 18 palettes	
Color Palettes		Display/ Fade/ Move (Support for Customization)	
Digital Zoom		1.0~8.0× Continuous Zoom(Step Size 0.1)	
Image Processing		Digital Filtering Noise Reduction/ Digital Detail Enhancement	
Power			
Power Supply Range		4~6V DC	
Power Protection		Expansion Board Support 5~24V DC Expansion Board Support Over Voltage, Under Voltage and Reverse	
Typical Power Consumption @25℃		＜1.0W（Without Expansion Board）	＜0.9W（Without Expansion Board）
		＜1.5W（With Expansion Board）	＜1.4W（With Expansion Board）
Interface			
Video Output	Analog Video	1 Channel (PAL/NTSC)	
	Digital Video	BT.656/14-bit or 8-bit LVCMOS/LVDS/MIPI/CameraLink	
Serial Communication Interface		RS-232/UART（3.3V）	
USB3.0		Typical Voltage 5V, Support Image and Temperature Data Transmission, Support Control Protocol	
Temperature Measurement Performance			
Measuring Range		-20℃～+150℃，0℃～+550℃	
Measurement Accuracy		±3℃ or ±3% of the reading (the larger one shall prevail)@Environment Temperature -20℃~60℃	
Temperature Measurement Tools		10 Fixed Dots Measurement, Maximum/Minimum Temperature Dots Capture, Center Dot Measurement, 12 Line/Rectangle Analysis , Isotherm Analysis	
Secondary Development			
Support		Language Customize Supported / Reticle Customize Supported	
SDK		Support	
Physical Characteristics			
Weight		20g±3g（Without Lens and Expansion Board）	
Dimension		26×26×22 (mm)（Without Lens and Expansion Board）	
Environment Adaptability			
Operating Temperature		-40℃～+80℃	
Storage Temperature		-45℃～+85℃	
Humidity		5%~95%, non-condensing	
Vibration		6.06g，random vibration, all axials	
Impact		80g，4ms，Final Peak Sawtooth Wave, 3 Axial 6 Direction	
Environmental Directives			
RoHS2.0		Support	
CE		Support	

High Accuracy Temperature Measurement Products

LT Series

High-precise Thermographic Module LT384H/640H

- High-performance temperature measurement with the accuracy of ±0.5℃ (±0.3℃ with blackbody) meets various future needs;
- Various electrical specifications and interfaces widen the application range;
- Professional software improves development efficiency.

Micro III Series

Ultra-compact Professional Grade Thermographic Module Micro III 384TH/640TH

- Ultra-small SWaP meets various needs of integrators;
- Wide measuring range (0℃~+60℃) can deal with various industrial scenes;
- High measuring accuracy (±0.5℃) meets the needs of industrial temperature measurement in various scenes.

HT Series

High-precise Temperature Measurement Thermal Bullet Camera HT300/600

- 320,000 large array can capture more temperature details;
- Support multi-target high-temp alarm and auto face tracing;
- The system is clear, easy to use, and quickly deployed;
- Detecting distance: 2-6m.

DT Series

Dual-spectrum Accurate Temperature Measurement Camera DTC300/200

- Non-contact quick measurement with the accuracy of ±0.3℃(with black body);
- Unaware quick measurement improves efficiency;
- Infrared+2-megapixel visible light optimizes recognition;
- Detecting distance: 1-3m.

AT Series

Precise Body Temperature Measurement Thermal Camera AT300/600

- Compact and miniaturized design realizes quick deployment;
- Megapixel optional, non-contact measurement with the high accuracy of ±0.3℃;
- Auto and real-time alarm with multiple methods of sound and image;
- Detecting distance: 1-5m.

AT Series

1.3 Megapixel Body Temperature Measurement Thermal Camera AT1280H

- Clear thermal details displayed by 1.3 megapixel makes temperature measurement more accurate and reliable;
- Keep a longer detection distance to improve the passage efficiency and reduces the risk of cross-infection;
- Help prevent and control the epidemic while providing a richer visual perception for future infrastructure.

IT Series

AI Thermal Imaging Temperature Screening System ITS II 300

- High-precision real-time temperature measurement supports fast no-stop quick passing;
- Infrared + visible dual light vision with AI face recognition technology;
- Cloud big data access;
- Detecting distance: 5-10m.

Tianshu Series

Handheld Thermal Camera C200H

- Non-contact quick screening, efficient and cost effective;
- Auto snapshot of high temperature with traceable data;
- Easy to deploy, out of the box;
- Detecting distance＜1m.