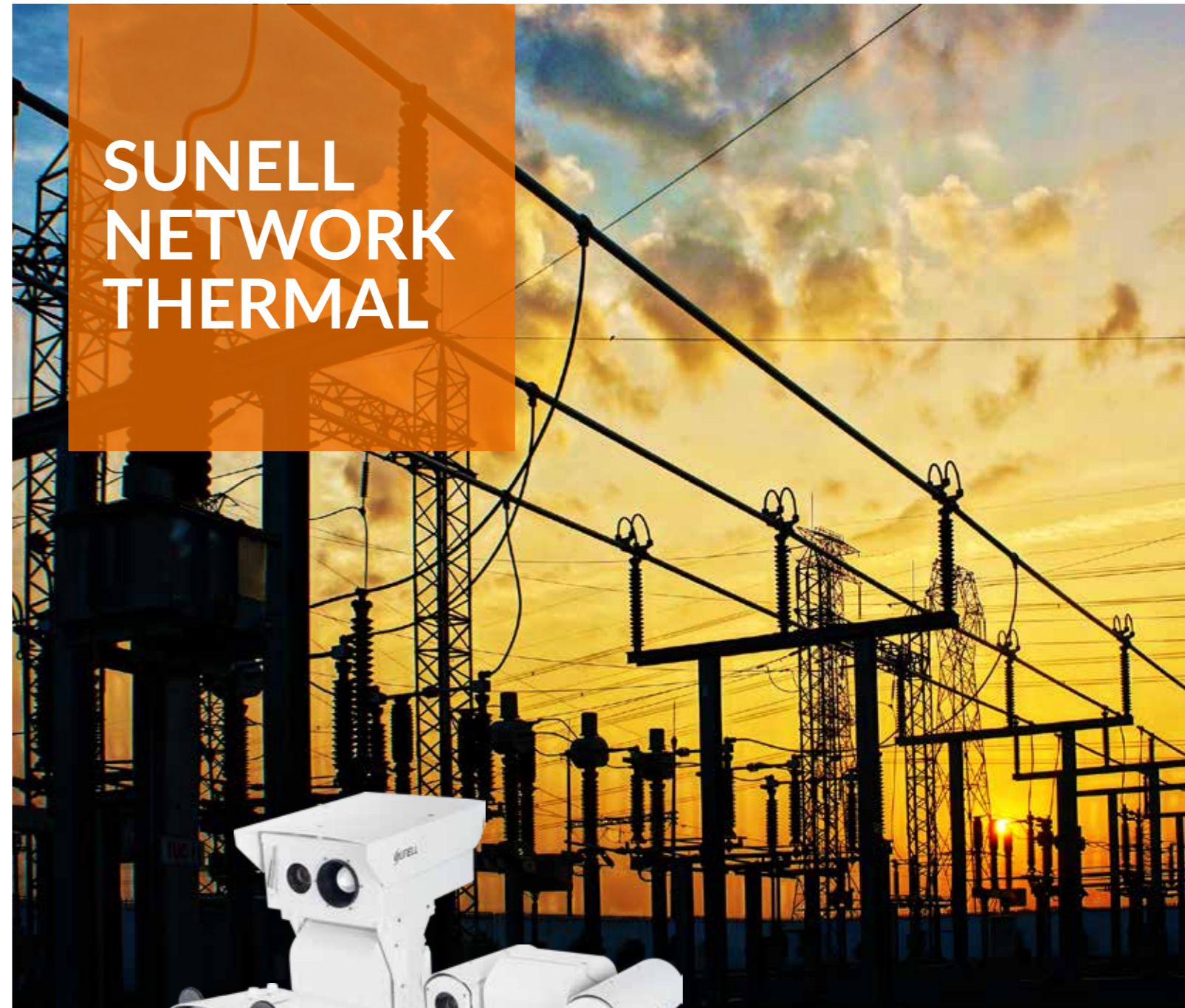


Sunell, Your Reliable Partner

SUNELL NETWORK THERMAL



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Aug 2019

www.sunellsecurity.com



THERMAL CAMERA INTRODUCTION

Sunell is pleased to announce the launch of high-performance thermal cameras product line, featuring an uncooled micro bolometer detector with D1 image quality, 400x300 and 640x512 resolution.

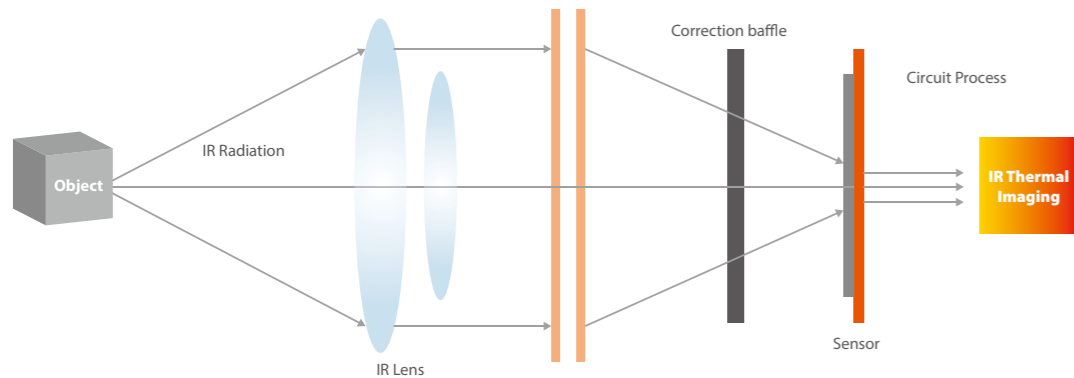
Sunell Thermal Cameras are the genuine all-in-one surveillance solution that meets wide variety of surveillance needs, with support of full range of optional lenses: 8/15/25/35/50/75/100mm.

Sunell Thermal Cameras also support different image color modes: white hot/black hot/iron bow/rainbow, and extra features like: DVE, Onvif compatibility and temperature detection.

Sunell Thermal Cameras can be used for monitoring various objects and situations, such as: electricity production and renewable energy equipment, manufacturing industry, building diagnostics, ocean affairs, perimeter security, forest fire protection, etc.



Any object as long as its temperature is above absolute zero (-273.15°), although doesn't have light, but radiates infrared ray, which can also be called infrared heat radiation. Infrared detector absorbs infrared ray from the objects with different temperature. When temperature is changed it generates an electric effect where electric signal is enlarging and being processed, resulting in to the obtaining of the thermal image which is corresponding to the thermal distribution of the object's surface, this image is also being called as the "Thermal imaging".



- FPA.
- Image processing algorithms.
- Electronic processing circuit.
- Thermal imaging camera.
- Temperature measurement and calibration algorithms.
- Production, Adjustment process and Testing.

Comparison between Thermal and Traditional Camera

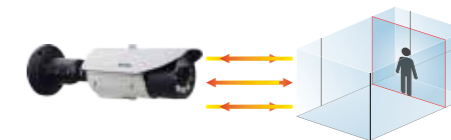
None IR Camera:

Needs visible light to reflect to a camera



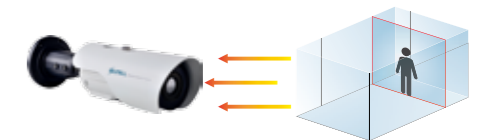
IR Camera:





IR LED radiates the IR light and then reflect to camera







Thermal Camera:

Only detects thermal radiation



Temperature Alarm				
Model	SN-TPC4201AT	SN-TPC6401AT	SN-TPC4201KT/F(III)	SN-TPC6401KT/F(II)
Appearance				
Max. Resolution	400x300	640x512	400x300	640x512
Sensitivity (NETD)	40mK @F1.0, 300K	40mK @F1.0, 300K	40mK @F1.0, 300K	40mK @F1.0, 300K
Lens	Fixed: 8/15/25/35/50mm F1.0, Motorized Focus: 8/25/50/75/100mm F1.0	Fixed: 15/25/35/50mm F1.0, Motorized Focus: 25/50/75/100mm F1.0	Fixed: 8/15/25/35/50mm F1.0	Fixed: 15/25/35/50mm F1.0
Lens/Angle of View	8mm: 46° × 35.3° 15mm: 25.5° × 19.2° 25mm: 15.4° × 11.6° 35mm: 11° × 8.3° 50mm: 7.7° × 5.8° 75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°	15mm: 39.8° × 32.3° 25mm: 24.5° × 19.7° 35mm: 17.6° × 14.1° 50mm: 12.4° × 9.9° 75mm: 8.2° × 6.6° 100mm: 6.2° × 4.9°	8mm: 46° × 35.3° 15mm: 25.5° × 19.2° 25mm: 15.4° × 11.6° 35mm: 11° × 8.3° 50mm: 7.7° × 5.8°	15mm: 39.8° × 32.3° 25mm: 24.5° × 19.7° 35mm: 17.6° × 14.1° 50mm: 12.4° × 9.9°
Detection Range Fires 1x1m ^(a) Humans 1.8x0.5m ^(b) Vehicles 4x1.5m ^(c)	8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m 35mm: 1029 ^(a) /1029 ^(b) /3137 ^(c) m 50mm: 1471 ^(a) /1471 ^(b) /4510 ^(c) m 75mm: 2206 ^(a) /2206 ^(b) /6765 ^(c) m 100mm: 2941 ^(a) /2941 ^(b) /9020 ^(c) m	8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m 35mm: 1029 ^(a) /1029 ^(b) /3137 ^(c) m 50mm: 1471 ^(a) /1471 ^(b) /4510 ^(c) m	8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m 35mm: 1029 ^(a) /1029 ^(b) /3137 ^(c) m 50mm: 1471 ^(a) /1471 ^(b) /4510 ^(c) m	8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m
Temp-Measurement Function	Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)		Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)	
Temperature Alarm	Over Temperature Alarm, Temperature Difference Alarm		Over Temperature Alarm, Temperature Difference Alarm	
Video Compression	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG
Frames Per Second	30fps	30fps	30fps	30fps
Intelligent Video	IVS, Fire detection & alarm	IVS, Fire detection & alarm	IVS, Fire detection & alarm	IVS, Fire detection & alarm
Polarity Control/LUT	White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)		White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)	
Audio In/Out	1/1	1/1	1/1	1/1
Alarm In/Out	2/2	2/2	2/2	2/2
Memory Slot	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB
Ingress Protection	-	-	IP66	IP66
Operating Temperature	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)
Power	DC12V	DC12V	DC12V/POE (802.3af)	DC12V/POE (802.3af)
Dimensions	72x70x189mm	72x70x189mm	Φ110x388mm	Φ110x388mm

Temperature Alarm				
Model	SN-TPT4201ZZ(III)	SN-TPT6401ZZ(II)	SN-TPT4231QF(III)	SN-TPT6431QF(II)
Appearance				
Max. Resolution	400x300	640x512	Visual: 2048x1536 Thermal: 400x300	Visual: 2048x1536 Thermal: 640x512
Sensitivity (NETD)	40mK@F1.0, 300K	40mK@F1.0, 300K	40mK @F1.0, 300K	40mK @F1.0, 300K
Thermal Lens	Fixed: 8/15/25/35/50mm F1.0, Motorize Focus: 25/50/75/100mm F1.0	Fixed: 15/25/35/50mm F1.0, Motorize Focus: 25/50/75/100mm F1.0	Fixed: 8/15/25mm F1.0, Motorize Focus: 8/25mm F1.0	Fixed: 15/25mm F1.0, Motorize Focus: 25mm F1.0
Angle of View	8mm: 46° × 35.3° 15mm: 25.5° × 19.2° 25mm: 15.4° × 11.6° 35mm: 11° × 8.3° 50mm: 7.7° × 5.8° 75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°	25mm: 15.4° × 11.6° 50mm, H: 7.7° × 5.8° 75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°	8mm: 46° × 35.3° 15mm: 25.5° × 19.2° 25mm: 15.4° × 11.6°	15mm: 39.8° × 32.3° 25mm: 24.5° × 19.7°
Visual Lens/FOV	-	-	30X, 4.5-135mm, 59.8°~2.3°	
Detection Range Fires 1x1m ^(a) Humans 1.8x0.5m ^(b) Vehicles 4x1.5m ^(c)	8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m 50mm: 1471 ^(a) /1471 ^(b) /4510 ^(c) m 75mm: 2206 ^(a) /2206 ^(b) /6765 ^(c) m 100mm: 2941 ^(a) /2941 ^(b) /9020 ^(c) m		8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m	
Temp-Measurement Function	Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)		Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)	
Temperature Alarm	Over Temperature Alarm, Temperature Difference Alarm		Over Temperature Alarm, Temperature Difference Alarm	
Video Compression	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG
Frames Per Second	30fps	30fps	Visual: 30fps, Thermal: 30fps	
Intelligent Video	IVS, Fire detection & alarm	IVS, Fire detection & alarm	Visual: Standard analytics, Thermal: IVS, Fire detection & alarm	
Polarity Control/LUT	White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)		White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)	
Audio In/Out	1/1	1/1	-	-
Alarm In/Out	2/2	2/2	-/1	-/1
Memory Slot	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB
Ingress Protection	IP66	IP66	IP66	IP66
Operating Temperature	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)
Power	DC36V	DC36V	DC24V	DC24V
Dimensions	585x251x502mm	585x251x502mm	322x192x163mm	322x192x163mm

Temperature Alarm				
Model	SN-TPT4231LZ/F(III)	SN-TPT6431LZ(II)	SN-TPT4231ZZ(III)	SN-TPT6431ZZ(II)
Appearance				
Max. Resolution	Visual: 1920x1080 Thermal: 400x300	Visual: 1920x1080 Thermal: 640x512	Visual: 1920x1080 Thermal: 400x300	Visual: 1920x1080 Thermal: 640x512
Sensitivity (NETD)	40mK @F1.0, 300K	40mK @F1.0, 300K	40mK @F1.0, 300K	40mK @F1.0, 300K
Thermal Lens	Fixed: 8/15/25/35/50mm F1.0, Motorize Focus: 8/25/50mm F1.0	Fixed: 15/25/35/50mm F1.0, Motorize Focus: 25/50mm F1.0	Motorize Focus: 25/50/75/100mm F1.0	Motorize Focus: 25/50/75/100mm F1.0
Angle of View	8mm: 46° × 35.3° 15mm: 25.5° × 19.2° 25mm: 15.4° × 11.6° 35mm: 11° × 8.3° 50mm: 7.7° × 5.8°	15mm: 25.5° × 19.2° 25mm: 15.4° × 11.6° 35mm: 11° × 8.3° 50mm: 7.7° × 5.8°	25mm: 15.4° × 11.6° 50mm: 7.7° × 5.8° 75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°	25mm: 15.4° × 11.6° 50mm, H: 7.7° × 5.8° 75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°
Visual Lens/FOV	30X, 6-180mm, 61.2°~2.32°		30X, 6-180mm, 61.2°~2.32°	
Detection Range Fires 1x1m ^(a) Humans 1.8x0.5m ^(b) Vehicles 4x1.5m ^(c)	8mm: 235 ^(a) /235 ^(b) /722 ^(c) m 15mm: 441 ^(a) /441 ^(b) /1353 ^(c) m 25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m 35mm: 1029 ^(a) /1029 ^(b) /3137 ^(c) m 50mm: 1471 ^(a) /1471 ^(b) /4510 ^(c) m		25mm: 735 ^(a) /735 ^(b) /2255 ^(c) m 50mm: 1471 ^(a) /1471 ^(b) /4510 ^(c) m 75mm: 2206 ^(a) /2206 ^(b) /6765 ^(c) m 100mm: 2941 ^(a) /2941 ^(b) /9020 ^(c) m	
Temp-Measurement Function	Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)		Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)	
Temperature Alarm	Over Temperature Alarm, Temperature Difference Alarm		Over Temperature Alarm, Temperature Difference Alarm	
Video Compression	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG
Frames Per Second	Visual: 30fps, Thermal: 30fps		Visual: 30fps, Thermal: 30fps	
Intelligent Video	Visual: Standard analytics, Thermal: IVS, Fire detection & alarm		Visual: Standard analytics, Thermal: IVS, Fire detection & alarm	
Polarity Control/LUT	White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)		White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)	
Audio In/Out	2/2	2/2	2/2	2/2
Alarm In/Out	9/4	9/4	9/4	9/4
Memory Slot	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB
Ingress Protection	IP66	IP66	IP66	IP66
Operating Temperature	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)
Power	DC36V	DC36V	DC36V	DC36V
Dimensions	419x282x316mm	419x282x316mm	660x375x539mm	660x375x539mm

Temperature Alarm			Radiometric Detection
Model	SN-TPT4231HZ(III)	SN-TPT6431HZ(II)	SN-D2
Appearance			 Coming Soon
Max. Resolution	Visual: 1920x1080 Thermal: 400x300	Visual: 1920x1080 Thermal: 640x512	Visual: 1920x1080 Thermal: 256x192
Sensitivity (NETD)	40mK @F1.0, 300K	40mK @F1.0, 300K	≤60mK @F1.0, 300K
Thermal Lens	Motorize Focus: 75/100mm F1.0	Motorize Focus: 75/100mm F1.0	Fixed Lens
Angle of View	75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°	75mm, H: 5.1° × 3.8° 100mm, H: 3.8° × 2.3°	Wide lens, H: 95°, V: 75°
Visual Lens/FOV	40X, 10~400mm, 33°~1.7°		Wide lens, H: 136.2°, V: 77.3°
Detection Range Fires 1x1m ^(a) Humans 1.8x0.5m ^(b) Vehicles 4x1.5m ^(c)	75mm: 2206 ^(a) /2206 ^(b) /6765 ^(c) m 100mm: 2941 ^(a) /2941 ^(b) /9020 ^(c) m		-
Temp-Measurement Function	Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -40°C~150°C (-40°F~302°F)		Spot: 20 / Line: 2 / Area: 16 Temp-Detection Range: -20°C~150°C (-10°F~302°F)
Temperature Alarm	Over Temperature Alarm, Temperature Difference Alarm		Over Temperature Alarm, Temperature Difference Alarm
Video Compression	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG
Frames Per Second	Visual: 30fps, Thermal: 30fps		Visual: 30fps, Thermal: 30fps
Intelligent Video	Visual: Standard analytics, Thermal: IVS, Fire detection & alarm		Visual: Standard analytics, Thermal: IVS, Fire detection & alarm
Polarity Control/LUT	White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)		White Hot / Black Hot / Rainbow / Ironbow (up to 17 define optional)
Audio In/Out	2/2	2/2	-
Alarm In/Out	3/3	3/3	1/1
Memory Slot	Micro SD, Max. 128GB	Micro SD, Max. 128GB	Micro SD, Max. 128GB
Ingress Protection	IP66	IP66	IP66
Operating Temperature	-40°C~60°C (-40°F ~140°F)	-40°C~60°C (-40°F ~140°F)	-20°C~60°C (-4°F ~140 °F)
Power	DC36V	DC36V	DC12V/24V
Dimensions	760x427x628mm	760x427x628mm	63 x 43 x 92mm

Sunell Thermal Camera Features

F-Vox Uncooled Micro Bolometer

640x512 units, NETD≤40mk, similar with Vox but high cost performance.

High Image Resolution

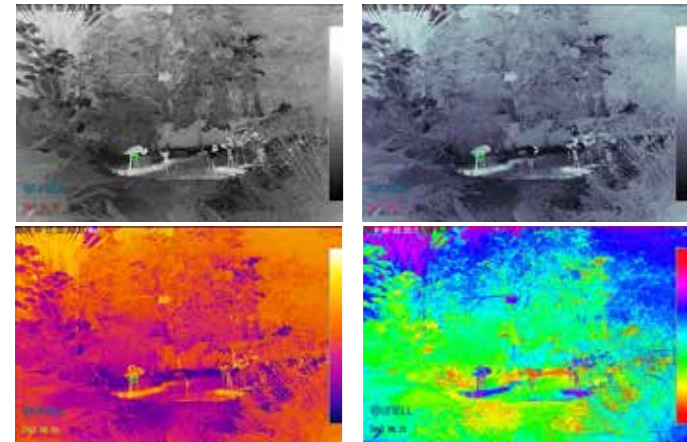
Real time up to 30fps, provide different resolution 640x512, 400x300, CIF, QCIF

Optional Lens

We provide optional lens 8mm, 15mm, 25mm, 35mm, 50mm, and also motorized lens 75mm, 100mm

Image Color Modes

White Hot/Black Hot/Ironbow/Rainbow etc.



IVS Security

Video Analytics with Perimeter, Single Virtual Fences, Double Virtual Fences, Object Left, Object Removed

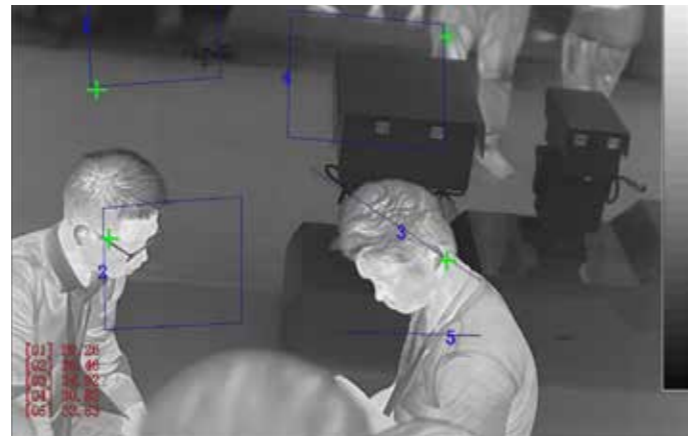


ONVIF Compatible



Temperature Detection

Spot: 20, Line: 2, Area: 16
Temp-Detection Range: -40°C~150°C (-40°F~302°F)



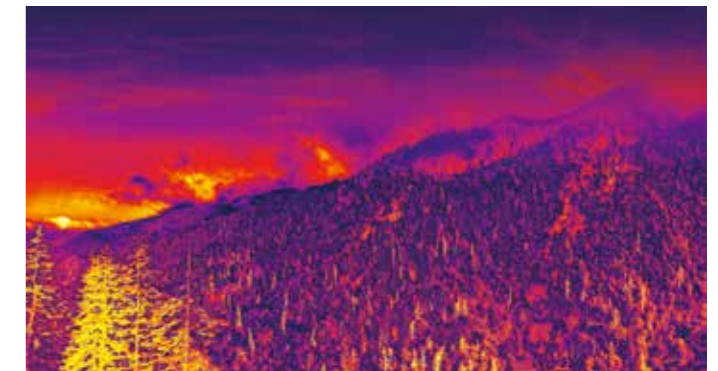
Thermal Typical Applications

Public Facilities



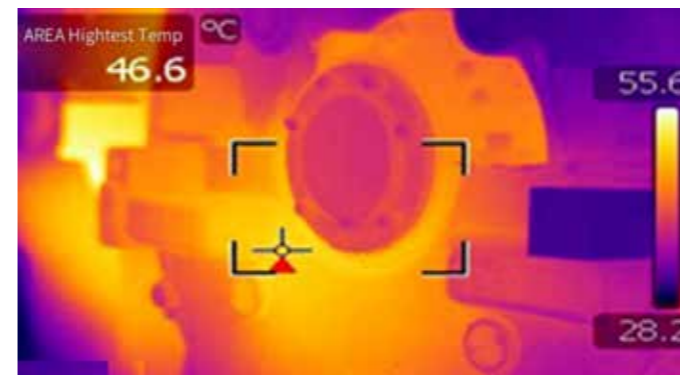
Electrical equipment. Thermal cameras can be used to discover abnormality in the power generations, transmissions, distributions and to avoid service interruptions caused by major failures.

Fire Control



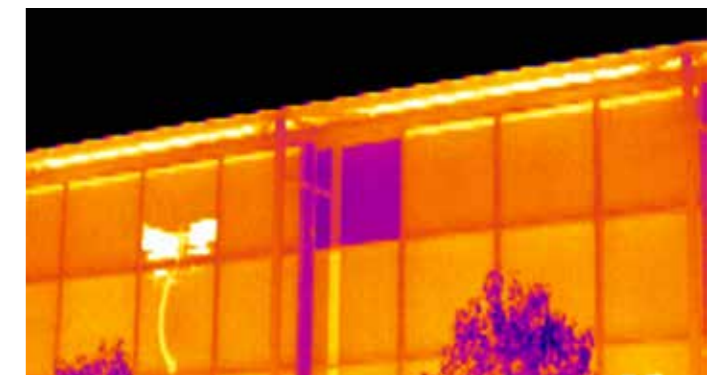
In a forest, when using traditional equipment it is difficult to find hidden signs of fire, but thermal cameras can easily find and control them, being a good solution in disaster prevention. Even during fire emergency rescue, a thermal camera can help firemen to find a source of fire and extinguish it. The best-case scenario is when a fire brigade with a car is equipped with at least one thermal camera.

Manufacturing Industry



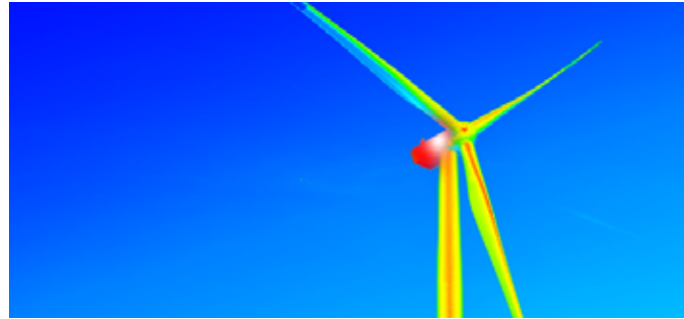
Equipment manufacturers can use thermal cameras to check big number of objects, like mechanical equipment, electrical equipment, components, power supply systems, etc. Thermal cameras can provide important information for maintenance and be a good tool in optimizing production processes.

Building Diagnosis



Thermal cameras are the best solution to check buildings, especially when it comes to insulation, humidity, surface cracks and distribution of the pipes. Thermal cameras can discover and help to prevent problems that may lead to huge pecuniary losses.

Renewable Energy



The scarcity of traditional energy sources such as coal, natural gas, and oil is an indisputable fact, and further utilization of these resources will lead to even greater pollution on our planet. With thermal cameras monitoring battery plates in solar power plants and wind turbines, we can provide consistent work for the green energy sources by detecting potential issues before failures occur.

Ocean Affair



Usually when it comes to water affairs there is a very low level of vision, at the same time safe requirements are very high. Thermal cameras can be used for merchant service, cruise, fishing, salvage and oceangoing voyage.

Perimeter Security



Thermal cameras are widely used for Homeland Security. Thanks to their ability to detect human targets several kilometers away, they are extremely suited for border surveillance and protection. But not only land borders need to be protected. Thermal imaging cameras are the perfect tools for coastal and building's perimeter surveillance.

Transportation



Thermal imaging is a good system to enhance driver's vision, it helps to detect road, pedestrians, animals or different objects so that a driver would have enough time to respond accordingly to the situation. Thermal cameras support work in full darkness conditions, fog or rainy weather and can help a driver to avoid potential accidents.

More Applications

Warehouse



Pipeline



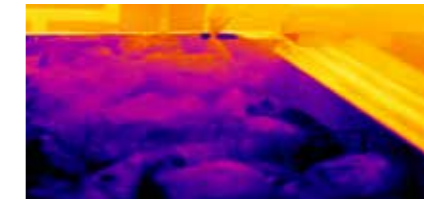
Airport



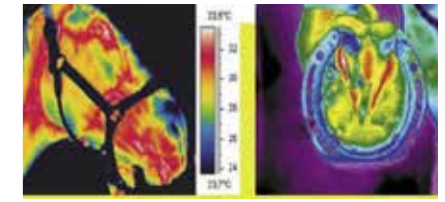
Safe City



Food Storage



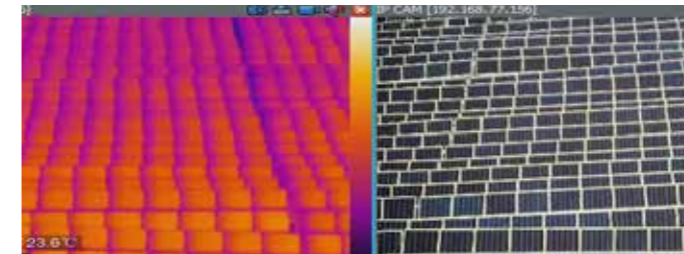
Medical Treatment



Sunell Case Study

Renewable Energy

YUNNAN China solar power plant



Public Facilities

HUNAN China power station



Fire Control

Forest fire prevention



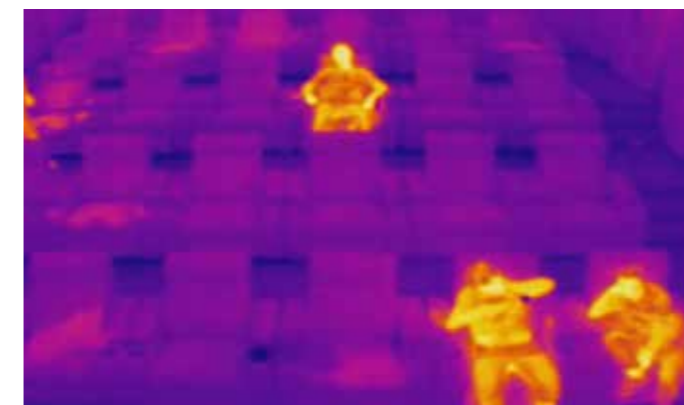
Safe City

CHONGQING China transportation street corners



More Cases

Cinema



Counting attendance rate
Temperature detection, fire prevention
Movie recording prevention

Radiometric Detection



Temperature check