

# Smart Thermal Product Guide

 Perimeter Protection

 Fire Prevention

 Temperature Measuring



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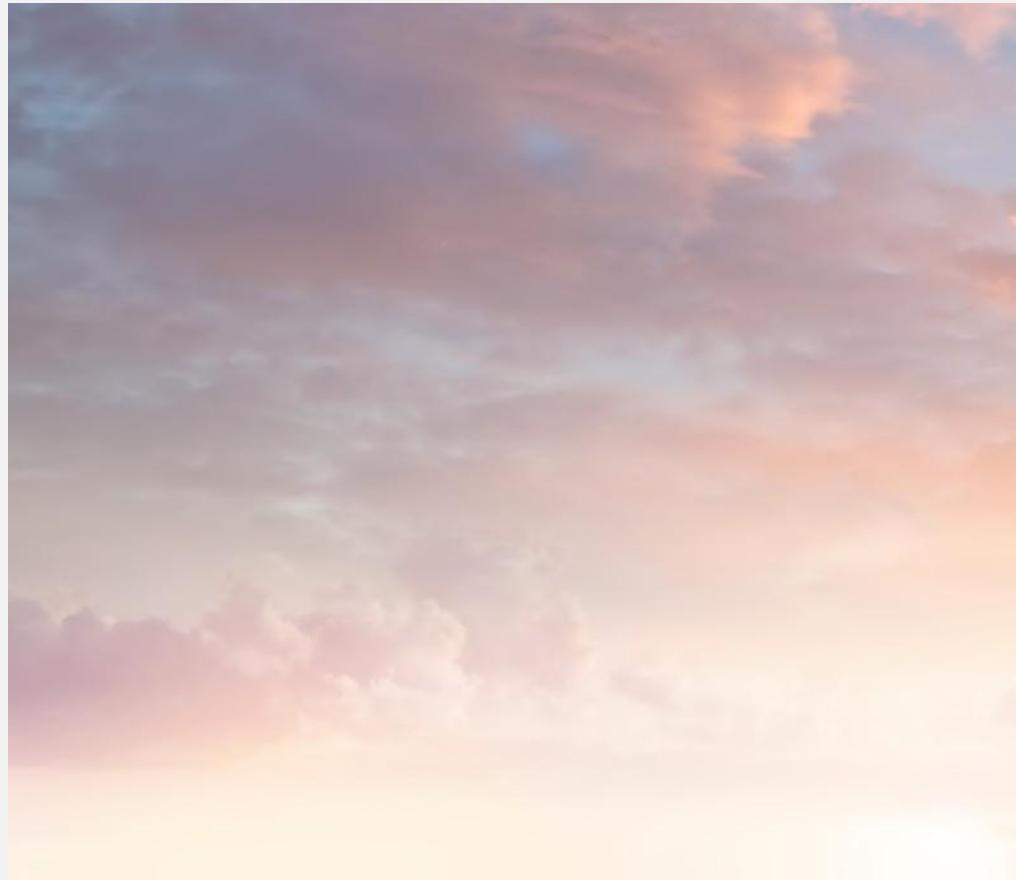
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Smart Thermal Product Family



## DSI/Sunell Company Profile

DSI/Sunell Technology is a leading provider of intelligent video solutions worldwide, with a European headquarter in Leipzig and multiple offices worldwide. In 2012, Sunell Technology launched its first thermal imaging camera and now has several product lines, including 640 x 512/400 x 300/256 x 192. Sunell's thermal imaging cameras not only meet the needs of high-precision temperature measurements, but also support various in-depth learning processes algorithms to meet the requirements for perimeter intrusion and fire prevention indoors and outdoors, achieving true multi-functional use.

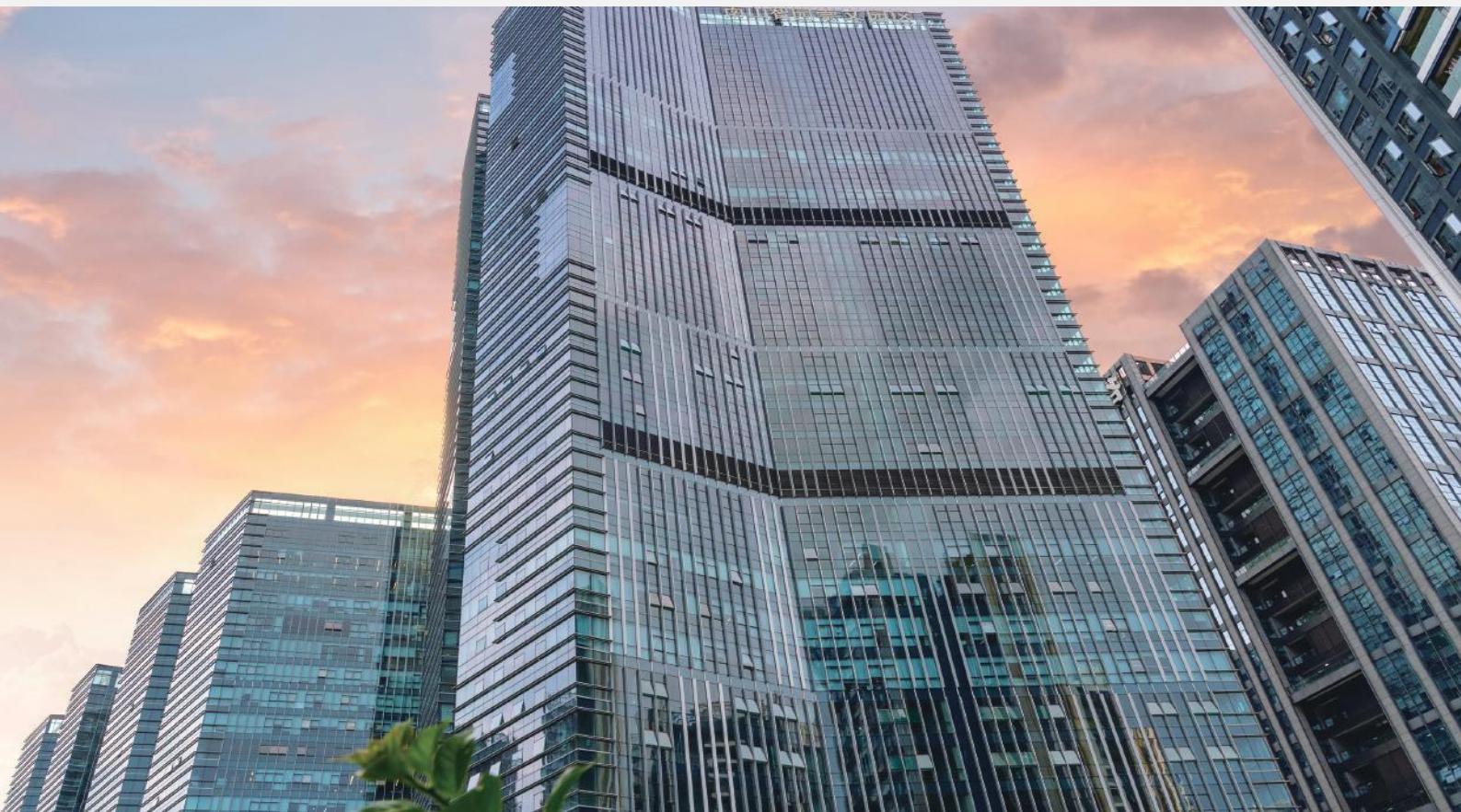
Our Bi-spectrum and a range of Thermal cameras are VdS3189, CNPP and NEN 2535 certified.

For large-scale project requirements, Sunell has powerful management platform software that can offer customers various industry-specific solutions. Furthermore, the cameras are integrated into various VMS and PSIM platforms. The cameras from the Thermal and Bispectral series are specially designed to work and display images under all conditions. The cameras have a thermal and/or visual lens on board with different sizes.

The cameras can recognize heat and smoke over a distance of 292 meters (1x1 m), as well as vehicles and people. In addition to these analytical matters, there are 8 other AI solutions on board.

Ideal for recycling companies but also for solar parks that are often not insured against fire and/or theft incidents. But petrol stations and parking garages also often use this camera to monitor the charging stations of electric cars and to receive a timely alarm in the event of a temperature increase.

***DSI/Sunell, “AI + Bi-spectrum” provider of intelligent video solutions!***



## Sunell Thermal Specials and Certificates

All our camera's will be delivered with a full 7 year warranty, have a malwaretag(firm- and software checked for malware), SRTP encryption on board.

The products are procuced without any Chinese supplier. We are using the following Suppliers: **NXP SOC**, **OPHIR Optronics Lenses**, The housing is made from **Dillux Steel** and painted with **Sikkens Rubol Paint**. Our power and PoE materials are from **AAEON**. We have our own Microbolometer.



### But that's not all.

We are proud of our products and know from experience that they are reliable and safe. In addition to our experiences, we have also had the products tested by third parties and looked at which certificates are important in the world we operate in.

With these certifications you know that our product is safe because the mold and software have been tested by third parties.

Do our products meet the requirements set worldwide or desired in a specific segment? In short, you are assured of a reliable and safe product in the United States and Germany.



CE



FCC



RCM



BSMI



UL



FIPS140-2



TÜV



GS



VDS



NEN



EAC



KC



C-tick



TAPA



RoHS



NDAA  
Compliant



LGC



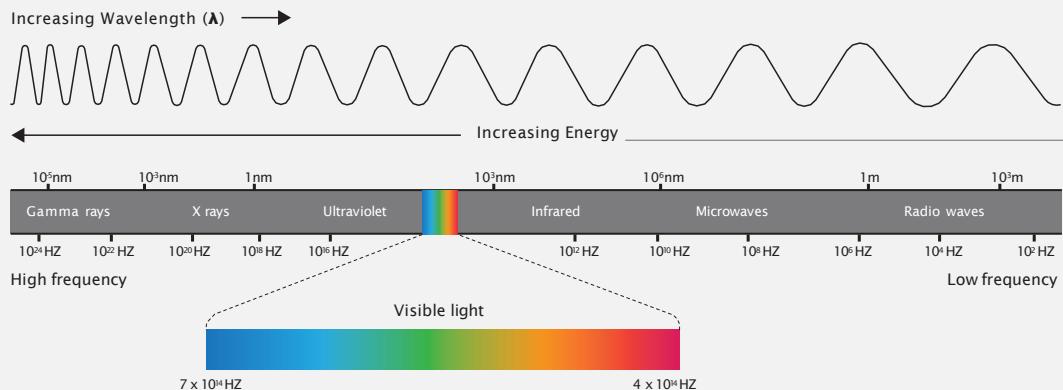
DGÜV



CNPP

# Thermal Imaging

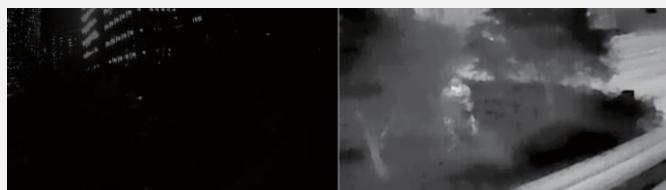
Any object with a temperature above absolute zero(-273.15°C) emits a detectable amount of infra-red (IR) radiation, also called heat radiation. The higher an object's temperature, the higher intensity of emitted IR. Though human eyes cannot see it, the thermal imager is able to detect IR radiation of 8~14μm and make the invisible IR "visible". The difference in image details corresponds to thermal distribution on the object's surface, which is "thermal imaging".



## Features

### Sharp Image without Light Source

The thermal imager forms an image without any visible light with heat radiation from the environment. Long-distance target is detected by it clearly all day.



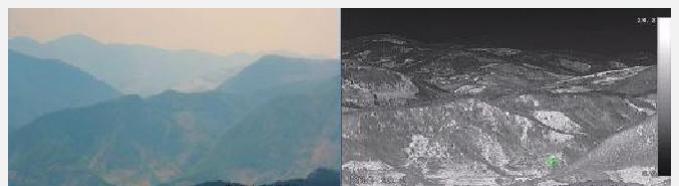
### Non-contact Temperature Measurement

Thermal cameras measure accurately the surface temperature of the object by quantifying IR heat radiation without physical contact between sensor and the target.



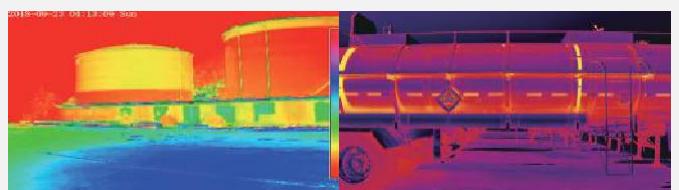
### Excellent Cloud-and-Mist Penetration

Infrared thermal radiation has better penetration of rain, snow and haze than visible light, so it can take clear images even in bad weather.



### Fault and Defect Detection

If there is malfunction occurred on the target, thermal imagers will find it out in a direct way using non-contact and long-distance temperature measurements.



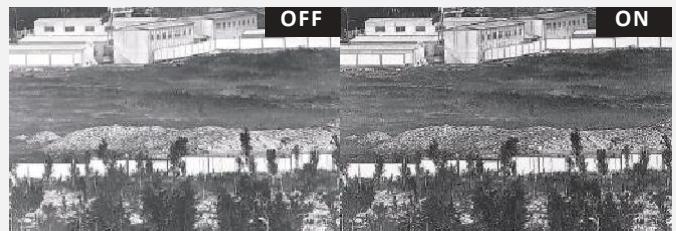
# Core Technology

## Excellent Image

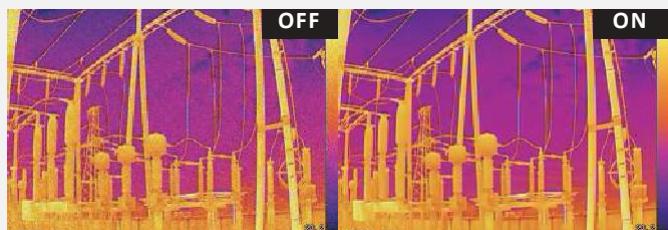
### AGC (Automatic Gain Control)



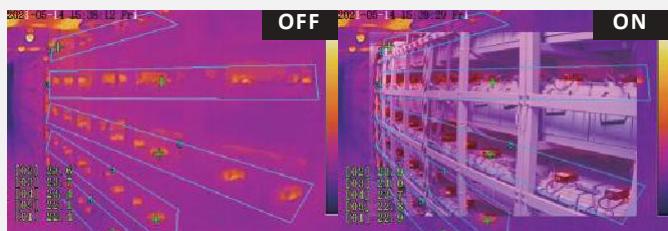
### DDE (Digital Detail Enhancement)



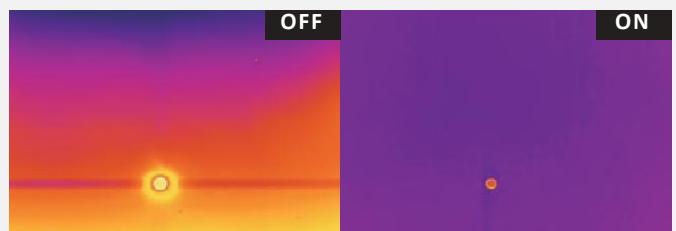
### 3D DNR (3D Digital Noise Reduction)



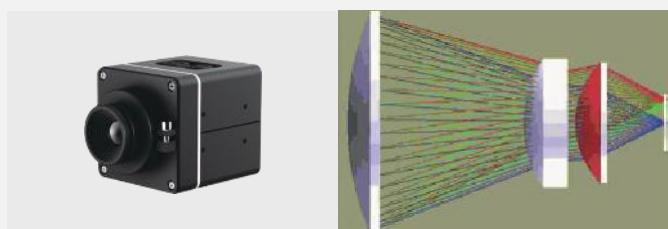
## Bi-spectrum Image Fusion



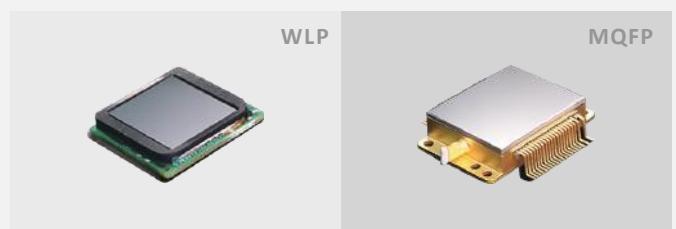
## Auto Burning Prevention



## Passive Athermalization

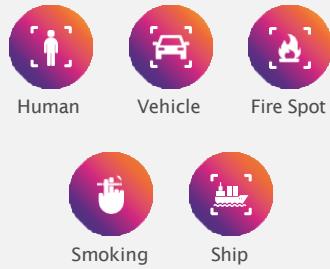


## High-sensitivity Vox Detector



## Intelligent Application

### Deep Learning



### Smart Event



### Active Deterrence



## Multiple-scenarios application



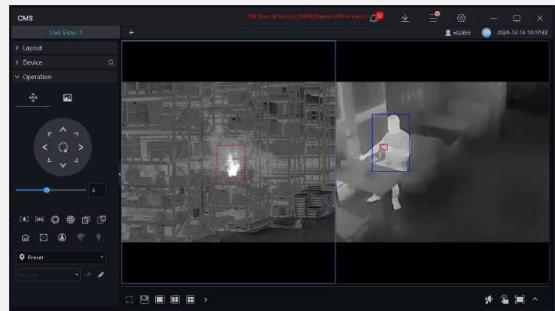
## Compatibility



# Systeem Structure



Mobile Client

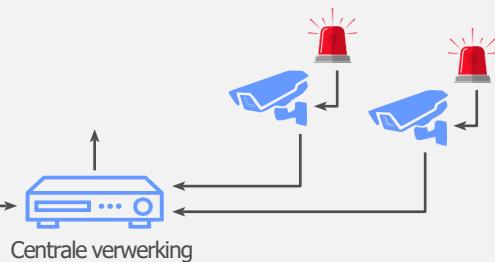


Beheerder



Onder werktijd kan de verantwoordelijke in de controlekamer temperatuuralarmen ontvangen en ze direct verifiëren via camerabeelden. Dit wordt geregeld door het VMS pakket of onze eigen VMS Pakket Sunview. Dankzij deze link kunnen alle alarmen en videobeelden ook op een mobiele telefoon of tablet ontvangen worden.

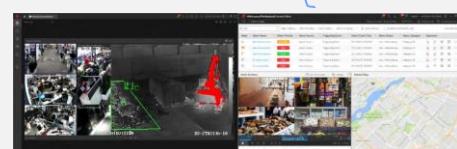
Buiten werktijd worden temperatuuralarmen doorgestuurd naar een (externe) meldkamer, waar het alarm via live beelden wordt geverifieerd. Op basis van de thermische beelden kan er in de meldkamer bepaald worden wat de bron is van het temperatuuralarm en of er actie ondernomen moet worden.



Bestuurbare PTZ-camera voor optische verificatie en monitoring



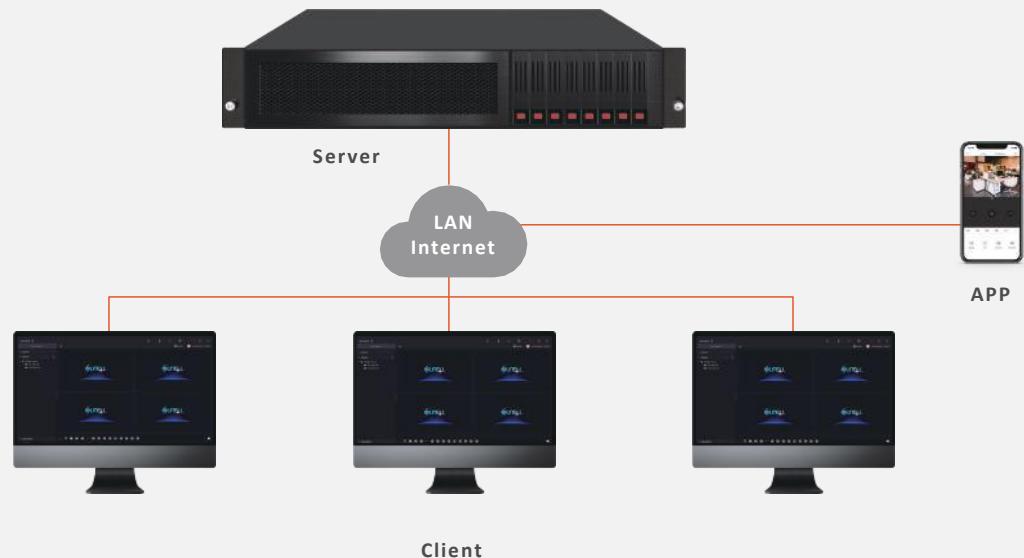
Thermische camera  
stuurt flitsers & sirene  
aan voor lokale alarmering



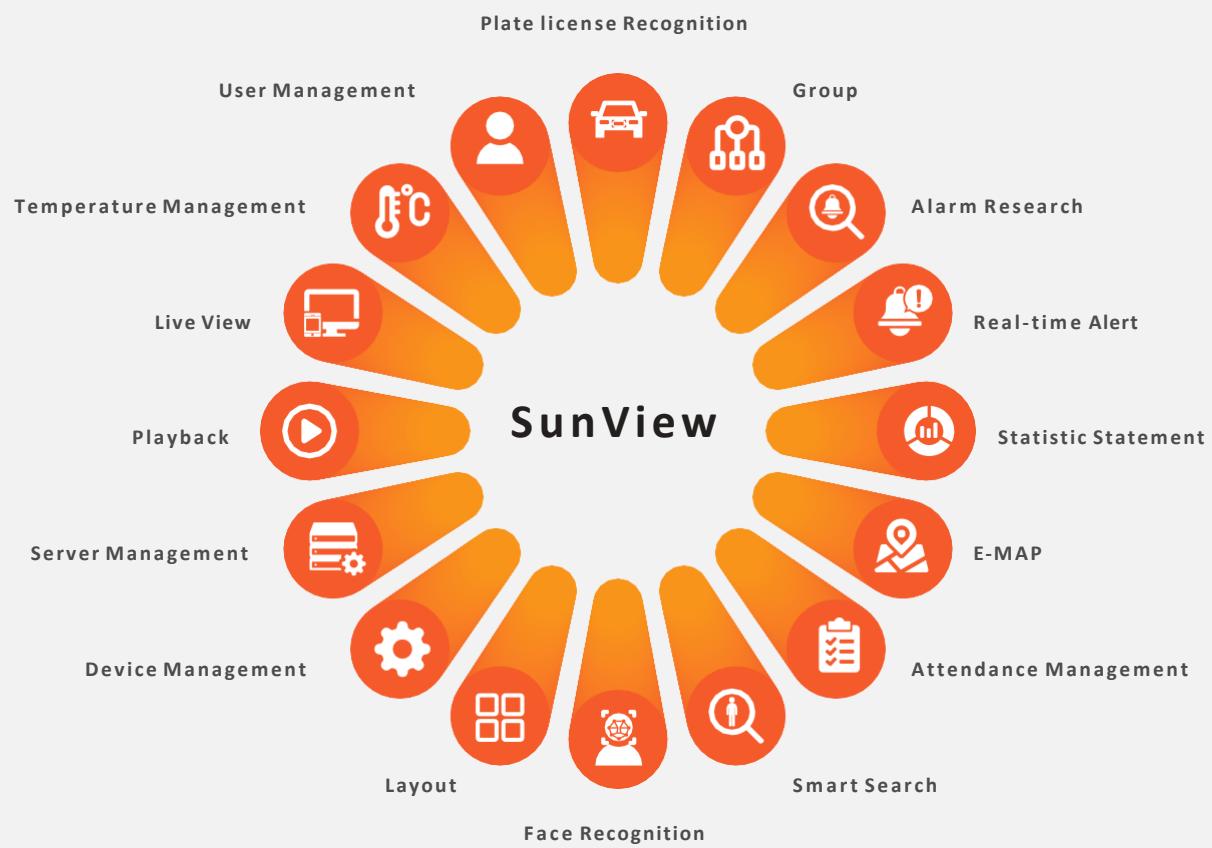
Buiten werktijd worden alarmen  
doormeldkamer geverifieerd

# SunView Management Platform

## SunView Composition



## SunView Function Module



# Integration with Third Party VMS and PSIM Suppliers



V21.12

IPC: 21.12, Profile S/Profile T/Profile G/Profile M  
NVR: 21.12, Profile S/Profile T

## Third Party Integration



But there are more integration already done.

More than 462 integrations with all kind of suppliers of software, convoyer, recyclingpartners etc.

### Perimeter Monitoring

- ✓ Human & vehicle detection
- ✓ Wildlife protection
- ✓ Bird Perching Detection
- ✓ Sound and light alarm



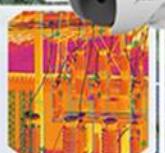
### Photovoltaic Panel Inspection

- ✓ Foreign object blockage
- ✓ Appearance damage
- ✓ Backflow



### Photovoltaic Step-Up Station

- ✓ Transformer online temperature monitoring



### Inverter and Combiner Box

- ✓ Temperature monitoring



### Fire Detection

- ✓ Smoke detection
- ✓ Fire point detection



### Photovoltaic Storage Cabinet

- ✓ Temperature monitoring
- ✓ Smoke detection



# Perimeter Protection



## Solution Value

Thermal cameras are able to achieve all-weather monitoring for perimeter intrusion detection. Even in rain, snow, or fog weather, a target from a long distance does not easily hide from it. Built-in deep learning algorithm enables fewer thermal cameras to perform smart perimeter protection of large coverage and long range.



### High Accuracy

With a built-in deep learning algorithm, thermal cameras can accurately detect humans, vehicles, and ships, and effectively reduce false alarms caused by animals, vegetation, and weather.



### Bi-spectrum IVS

AI+ Bi-spectrum meets real all-weather monitor without blind spots.



### Active Deterrence

There are alarm lights and speakers inside thermal cameras; Voice customizable; Real-time sound and light alarms to deter intruders.



### Hidden Target Detection

Thermal cameras effectively detect a target behind the vegetation or in the dark.



### Wider Range

Compared with optical lenses, thermal imaging does not require supplemental light. Therefore it is not affected by bad weather, making coverage wider and ranger longer.



### Complete Category

Thermal product category is complete to meet short, medium and long perimeter.

# Application Scenarios

## Short Distance (within 100 m)

High cost-effective; Bi-spectrum: 256 x 192 Thermal+ HD optical;  
All-weather smart perimeter protection; Accurate human and vehicle detection; Real-time sound and light alarm



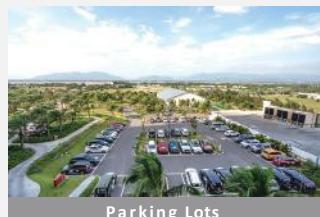
SN-TPC2552CT



SN-TPC2553DRT



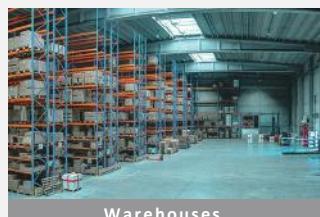
Apartments



Parking Lots



Factories



Warehouses

## Medium Distance (100~ 500 m)

400 x 300 / 640 x 512 high thermal resolution; Flexible mix: One/Dual/PTZ thermal cameras optional; Large coverage and all-weather smart perimeter protection



SN-TPC4203KT  
SN-TPC6406KT



SN-TPC4203KT



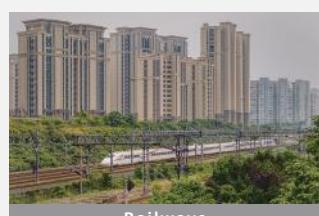
SN-TPT4233LZ  
SN-TPT6436LZ



Photovoltaic Power Stations



Rivers



Railways



Steel Industry

## Long Distance (over 500 m)

All-weather accurate monitor on large and beyond visual range coverage when deployed at commanding heights; Big scene, but also HD close-up target identification



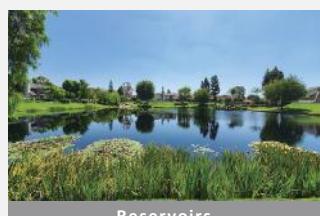
SN-TPT4233ZZ  
SN-TPT6436ZZ



SN-TPT4233HZ  
SN-TPT6436HZ



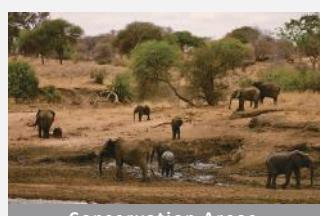
Airports



Reservoirs



Basements



Conservation Areas

# Fire Prevention



## Solution Value

With Fire Spot, Fire/Smoke, Temperature Threshold, and other temperature alarms, Sunell thermal cameras can give timely alerts to prevent the occurrence, development, or spread of a fire hazard. By giving an early warning signal, a fire hazard can be effectively avoided and the loss caused by it can be reduced.



### Fire Spot Detection (Thermal)

By Fire Spot alarm algorithm, thermal cameras can locate fire spots in time and prevent fire from occurrence.



### Temp Anomalies Detection

Online temperature monitoring can detect the hot spot or quick temperature rising, effectively avoiding fires.



### Real-time Sound and Light Alarm

There are built-in alarm lights and speakers to notify the temperature alarm; Voice customizable.



### Fire/Smoke Detection (Optical)

Intelligent Fire/Smoke detection allows thermal cameras to activate the alarm as soon as possible when fire or smoke is identified.



### Smoking Detection

Thermal cameras detect cigarette smoking behavior and activate smoking alarms, lowering the fire risk.



### Complete Category

Thermal product category is complete to meet short, medium and long fire prevention.

# Application Scenarios

## Short Distance

Multiple algorithms are supported by one of the above cameras, such as Fire Spot Detection, Fire/Smoke Detection, and Smoking Detection. It can also activate Temperature Threshold and Temperature Rise alarms. In this way, the occurrence of fires can be prevented in time.



Gas Stations



Battery Warehouses



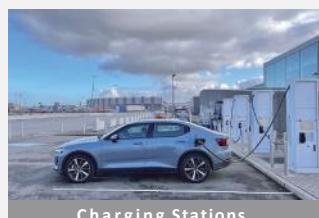
Data Centers



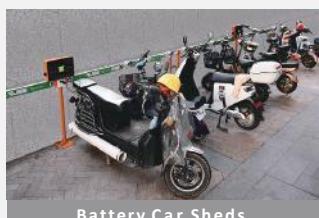
Warehouses



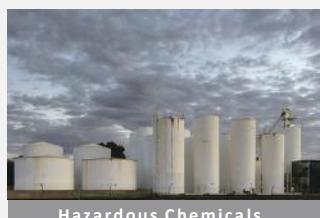
Museums



Charging Stations



Battery Car Sheds



Hazardous Chemicals

## Medium and Long Distance

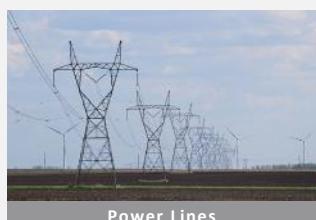
Fires usually happen suddenly and are destructive, which are detrimental to the environment, therefore making fire extinction and rescue hard to proceed. Bi-spectrum PTZ thermal cameras can detect fire spots from a medium and long distance. The administrators can be notified in time with alarms before fires get developed and spread.



Straw Burning



Forest Fire Protection

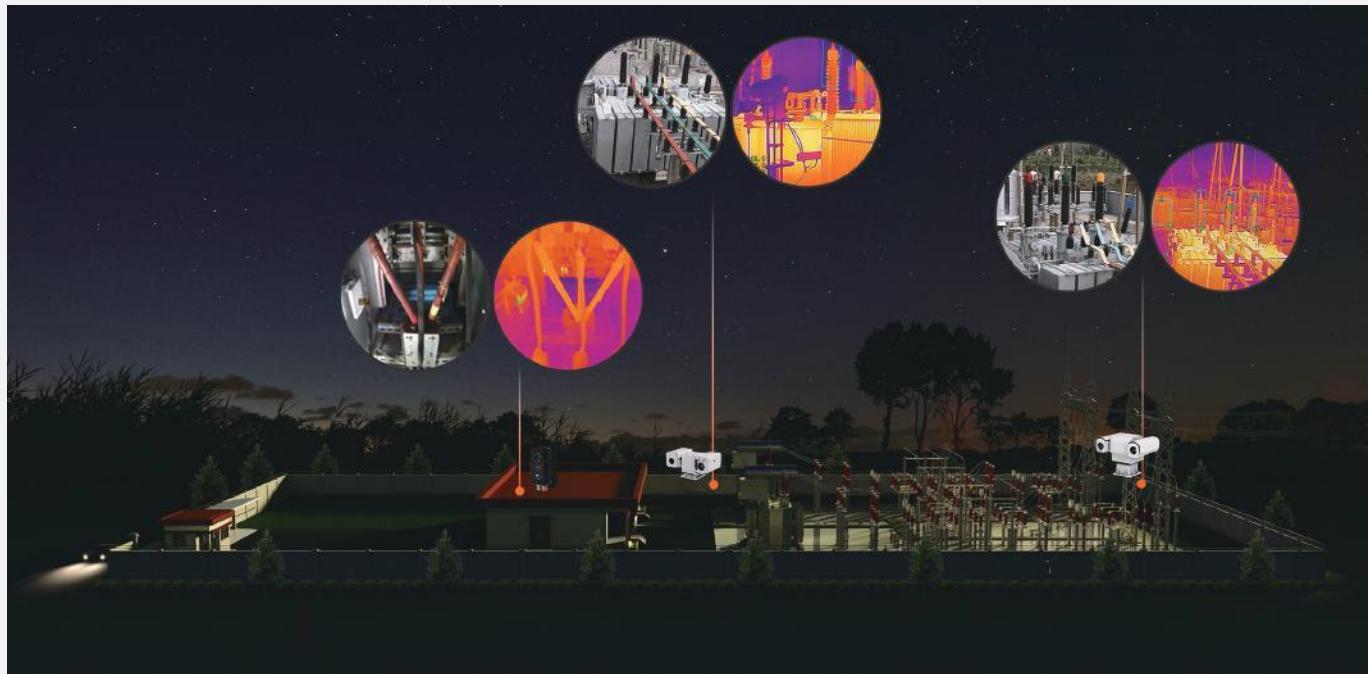


Power Lines



Landfills

# Temperature Measuring (Electrical Industry)



## Solution Value

Most of the abnormalities and failures of power equipment are caused by the Heating Effect of Electric Current. If no measures are taken, it is very likely to cause safety accidents. Sunell thermal cameras are widely used in all aspects of electricity generation, transformation, transmission, and distribution in the electrical industry.



### Temperature Accuracy

±2°C ( $\pm 3.6^{\circ}\text{F}$ ) /  $\pm 2\%$



### Temperature Areas

Support 3 temperature measurement rule types (spot, line, area)



### Worm Gear and Worm Drive PTZ

Thermal PTZ cameras can always locate the position accurately. It will not be affected by external power.



### Inspection Plan

Configure thermal imaging inspection plan, retrieve inspection records, generate inspection report, etc.



### Temperature Range Customizable

Default: -20°C~150°C (-4°F~302°F)

Customizable:  $\leq 900^{\circ}\text{C}$  (1652°F)



### Temperature Alarm Types

Temperature Threshold/Difference/Rise



### Preset Temperature Monitoring

Thermal PTZ series can monitor the temperature of preset points, which meets the requirement of multi-object temperature measuring in a big scenario.



### Temperature Curve

Sunell SunView platform can retrieve historical data of thermal imaging cameras and area temperature measurements in curves, which provides a basis for judging the operating status of equipment.

# Application Scenarios

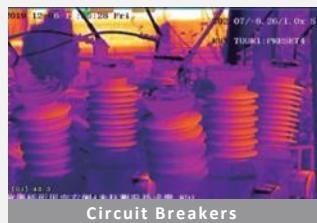
## Transformer Substation



Online detection of common faults such as lack of oil in transformer bushings, poor contact of isolating switches and circuit breaker contacts, heating of transformers, capacitors, and lightning arrester joints, etc.



Transformers



Circuit Breakers



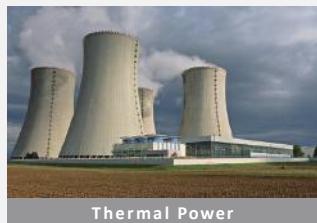
Mutual Inductors



Isolating Switches

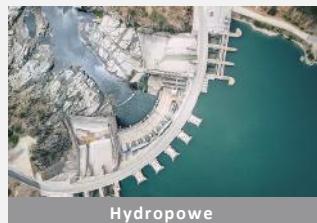
## Electricity Generation

Online temperature measurement in coal yards, conveyor belts, coal mills, pulverized coal pipelines, transformers, etc.



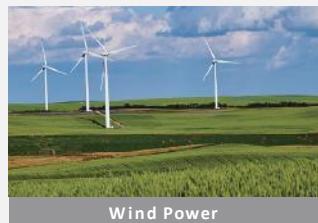
Thermal Power

Online temperature measurement of high-voltage electrical equipment such as hydroelectric generator sets and booster stations.



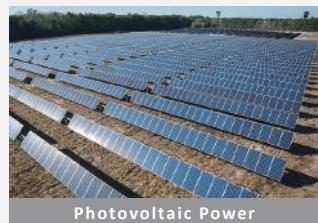
Hydropower

Online temperature measurement of engine room generator set, variable pressure, high voltage switch cabinet, etc.



Wind Power

Online temperature measurement of combiner boxes, inverters, booster stations, and other equipment, hot spot detection of photovoltaic modules.



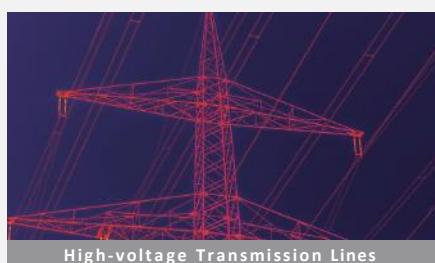
Photovoltaic Power

## Electricity Transmission



SNTPT4233QF  
SNTPT6436QF

Detection of the thermometer abnormality caused by oxidation and corrosion of metal fittings or wire clips, loose bolts, poor contact, etc.



High-voltage Transmission Lines

## Electricity Distribution

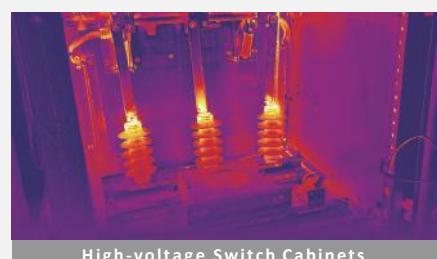


SNTPT4233QF  
SNTPT6436QF

Online temperature measurement of high-voltage switchgear busbars, cable joints, etc.



Electricity Distribution Room



High-voltage Switch Cabinets

# Photovoltaic Power

## Solution Value

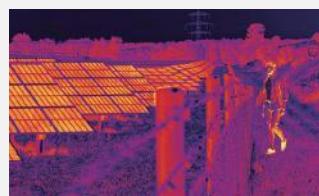
Photovoltaic power stations occupy a large area, which is generally located in remote areas and have relatively high operation and maintenance costs. By deploying Sunell thermal imaging cameras, management efficiency effectively improves, and long-distance fire points and perimeter intruders can be quickly found. By conducting online temperature measurements, Sunell thermal cameras can detect potential safety hazards of key equipment such as combiner boxes, inverters, transformers, and energy storage cabinets in a timely manner.



## Application Scenarios

### Perimeter Protection

Sunell thermal cameras can detect intruders (human, animal, etc.) in a long distance by sound and light alarms.



SN-TPC2553DRT  
SN-TPC4233DJT

### Fire Prevention

With Bi-spectrum PTZ series deployed in photovoltaic power stations where there are lots of weeds and trees, fire points can be found swiftly, the detection distance is long and the accuracy is high.



SN-TPT4233LZ  
SN-TPT6436LZ  
SN-TPT4233ZZ  
SN-TPT6436ZZ

### Real-time Temperature Measuring

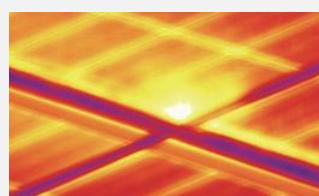
By conducting online temperature measurements, Sunell thermal cameras can detect potential safety hazards of key equipment such as combiner boxes, inverters, transformers, and breakers in a timely manner.



D2/D2L  
SN-TPC6406KT

### Hot Spot Detection

The thermal imaging PTZ series automatically inspects and captures photos. By temperature difference alarm or manual review, it can help judge the hot spot situation.



SN-TPT4233LZ  
SN-TPT6436LZ

# Petrochemical Industry

## Solution Value

The industrial chain of the petrochemical industry is very large, including oil exploration, pipelines, chemical plants, oil depots, gas stations, etc. Many places in this industry are characterized by high temperature, high pressure, flammability, and explosion. Sunell thermal imaging is able to monitor the status of equipment online, detect potential safety hazards of equipment in a more timely manner and play an important role in reducing the occurrence of accidents.



## Application Scenarios

### Perimeter Protection

Theft detection in oil fields and pipelines, etc.  
Intrusion detection to prevent accidents in High-risk areas.



**SNTPC4233DJT**    **SNTPH4203DA**  
**SNTPH6406DA**

### Fire Prevention

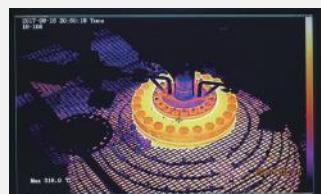
Real-time Fire Spot and Smoking alarms to find the potential fire risk and fire situation in hazardous chemical warehouses with raw materials and finished products, non-smoking factory areas, oil depot areas, oil tank areas, gas stations, and other scenarios.



**SNTPC2553DRT**    **SNTPH4203DA**  
**SNTPH6406DA**

### Real-time Temperature Measuring

Online accurate temperature measurement of refining and chemical equipment, pipelines, station valve hall equipment, electrical equipment, etc.



**SNTPH4203DA**  
**SNTPH6406DA**

**SNTPT4233PAR**  
**SNPT6436PAR**

### Fault and Defect Detection

Oil storage tank liquid level line, fouling, tank damage, etc. detection.  
Detection of pipeline corrosion, leakage, blockage, etc.



**SNTPH4203DA**  
**SNTPH6406DA**

**SNPTT4233PAR**  
**SNPT6436PAR**

# Metallurgical Industry

## Solution Value

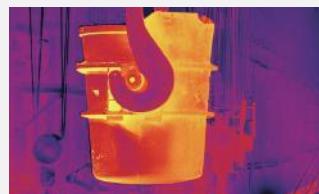
Temperature is an important indicator in many production chains in the metallurgical industry. Sunell Thermal cameras can perform real-time temperature measuring to monitor whether there is any abnormality in the production status. Hidden dangers of equipment can be quickly found by thermal imaging analysis, effectively ensuring normal production and increasing production efficiency.



## Application Scenarios

### Real-time Steel Ladle Protection

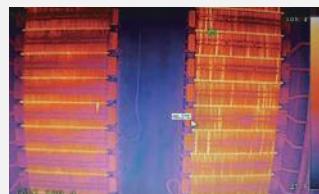
The thermal imager accurately measures the temperature of the steel ladle, and take clear thermal images, which can visually judge the defects of the ladle lining and analyze the degree of the defect.



SNTPH4203DA

### Electrolyzer Temp. Rise Monitor

Simultaneous temperature measurement of multiple groups of electrolytic cells; Online temperature changes monitoring of the electrolyte and the plate; Sound and light alarm linkage.

SNTPH4203DA  
SNTPH6406DA

### Detection of Hidden Dangers

Sunell thermal camera is able to detect hidden dangers of smoldering coal piles and high-temperature anomalies of conveyor belts, which can be linked with spraying for cooling.



SNTPH4203DA

### Electrical Equipment Temp. Measuring

Online temperature measurement of electrical equipment such as power transformation and distribution.



D2/D2L

SNTPC6406KT

# New Energy Industry

## Solution Value

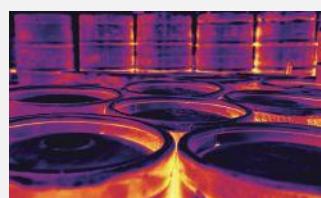
The proportion of sales of new energy vehicles is getting higher and higher, followed by more rapid expansion of power battery-related industrial chains and more frequent occurrence of spontaneous combustion accidents. Safety issues are becoming increasingly prominent. Thermal imaging cameras can increase the safety of upstream and downstream enterprises in the new energy industry chain.



## Application Scenarios

### Raw Material

The electrolyte is volatile and flammable while Sunell explosion-proof thermal imaging is able to perform the fire prevention.



SNTPH4203DA  
SNTPH6406DA



SNTPT4233PAR  
SNTPT6436PAR

### Factories

During the charging and discharging process of the power battery, it may spontaneously ignite due to problems such as the quality of the battery cell and the PACK process. It is very important to know the temperature in real-time. Sunell thermal imager is applicable in production, aging, storage, and other chains to find battery quality defects in time.



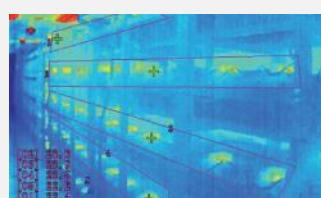
SNTPC2553DRT



SNTPT4233QF  
SNTPT6436QF

### BESS

Real-time simultaneous temperature monitoring of the positive and negative poles of multiple sets of batteries to find abnormal batteries in time.



### Charging & Battery Swap Stations

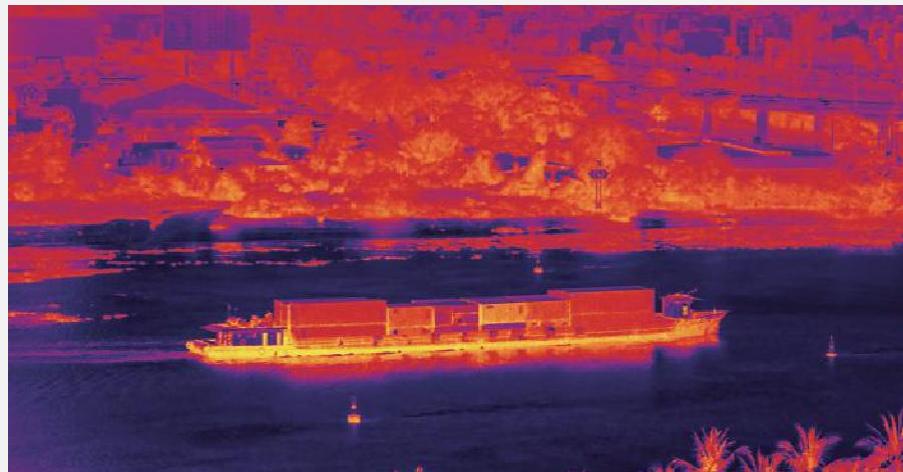
Electric vehicle fires frequently occur in areas with huge losses caused by them. When abnormalities are found by real-time temperature monitoring, Sunell thermal imager can activate the alarm in time.



# Water Conservancy Industry

## Solution Value

Rivers and lakes are an important part of the natural ecology. The personnels can manage rivers better at night or in bad weather with the help of Sunell thermal cameras to stop environmental damage and crimes in a timely manner.



## Application Scenarios

### Illegal Intrusion

Ship illegal intrusion active deterrence for gates and other waters where ships are prohibited from traveling and stopping.



SNTPT4233LZ  
SNTPT6436LZ

### Illegal Sand Mining

Illegal sand mining destroys the ecology of the river channel. Sand mining causes uneven river beds and even affects the safety of flood control dams. Sunell thermal imaging can detect illegal mining at night. The detection distance is up to more than 5 kilometers.



SNTPT4233LZ  
SNTPT6436LZ

### Illegal Fishing

Sunell thermal imaging is suitable for monitoring dangerous or illegal activities, such as illegal fishing during fishing bans, fishing and swimming in reservoirs, etc.



SNTPT4233LZ  
SNTPT6436LZ

### Illegal Rubbish Dumping

Real-time monitoring of illegal activities such as dumping garbage on the river bank at night. Real-time alarms of vehicles entering the defense area by vehicle shape algorithm.



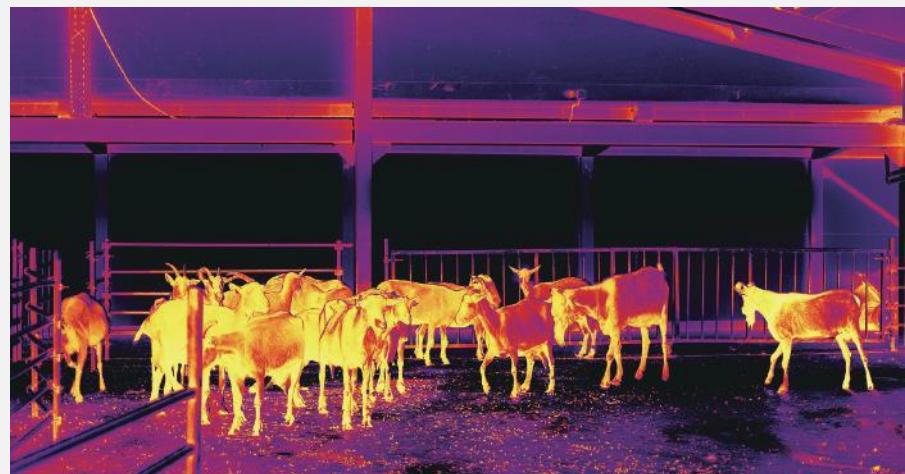
SNTPT4233LZ  
SNTPT6436LZ

# Livestock & Poultry Industry

## Solution Value

With the heat distribution pattern on the body surface of the individual obtained by Sunell thermal imager, it is helpful to analyze and judge the lesion location and lesion degree.

Non-contact temperature measurement helps avoid individual stress reactions.



## Application Scenarios

### Swine Fever Virus

Acute swine fever virus has the characteristics of a short incubation period, high fever, and rapid death. Sunell thermal cameras can monitor pig herd temperature on a daily basis, which can be seen as an early diagnostic tool for swine fever infection.



### Bovine Mastitis Disease

Bovine mastitis is a major problem faced by the dairy industry, accounting for more than 40% of cattle morbidity. The disease leads to hypofunction of the mammary glands of dairy cows and even loss of the function of lactation. However, Sunell's thermal imaging camera can detect the disease at an early stage.



### Foot-and-Mouth Disease (FMD)

Foot-and-mouth disease is an acute, febrile, and highly contagious infectious disease common to pigs, cattle, sheep, and other animals, with more than 70 susceptible animals. The disease spreads quickly through many routes. Sunell thermal imaging is believed to be able to detect FMD early by observing hyperthermia.



### Bovine Respiratory Disease (BRD)

The bovine respiratory disease causes serious harm to the cattle industry every year. When the disease occurs, the temperature of the bull's eye will rise. Sunell thermal cameras can measure the temperature and monitor this disease.



# Thermal & Optical Bi-Spectrum Network Cube Camera

SND2L

256×192



Super Wide Angle



Temperature Accuracy



White LED



Dual Image Fusion



IP66

- Thermal: 256×192, 12 μm, 2.0 mm, H: 90°, V: 65°
- Optical: 2MP, 1600×1200, 2.3 mm, H: 100°, V: 75°
- Dual Image Fusion
- White LED
- Temp. Accuracy: ±2°C / ±2%
- Temp. Pre-alarm & Alarm
- Temp. Threshold/Difference/Rise Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Range: -20°C~150°C
- Interface: 1Alarm In/Out, RS485/232, Micro SD card
- DC10~30V/POE(802.3af)
- IP67

## Application Scenarios

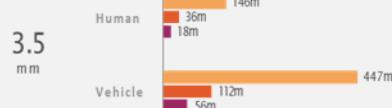
High voltage switch cabinet and other industrial temperature measurement scenarios with narrow space.

256x192

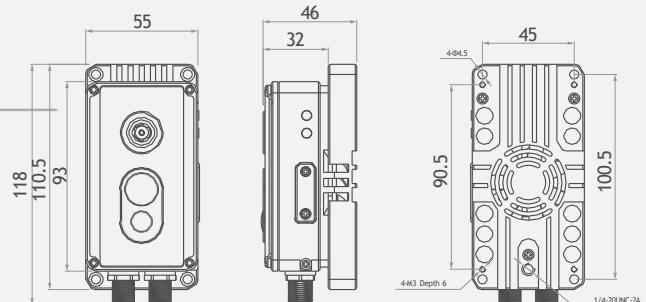
12 μm



● Detection    ● Recognition    ● Identification



## Dimensions (mm)



## Accessories



Gimbal Mount Bracket

# Thermal & Optical Bi-Spectrum Network Turret Camera



**SNTPC2553CT**  
**SNTPC2552CT**

Parameters vary according to device models.

**256×192**



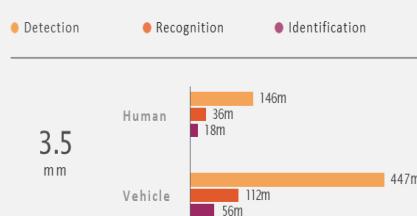
- Thermal: 256×192, 12 µm, 3.5 mm
- Optical: 5MP, 2880×1620, 4 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/ Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Built-in Microphone
- Built-in speaker & alarm light
- 35 m IR
- Temp. Accuracy: ±2°C / ±2%
- Temp. Range: -20°C~150°C
- Interface: 1Audio In/Out, 1Alarm In/Out, RS485, HDMI, Micro SD Card
- DC12V/DC24V/POE(802.3af)
- IP66

## Application Scenarios

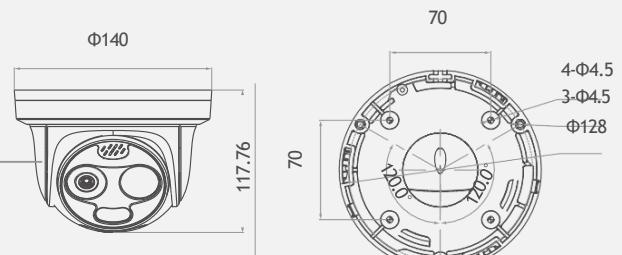
Perimeter Protection, Indoor Fire Prevention, Industrial Temperature Measuring...

**256x192**

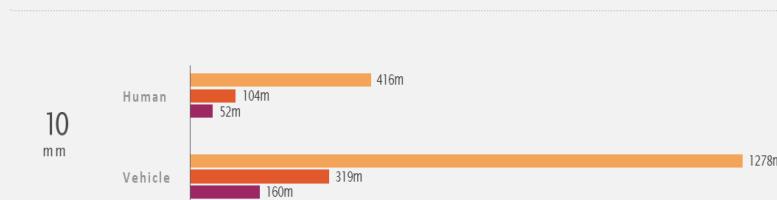
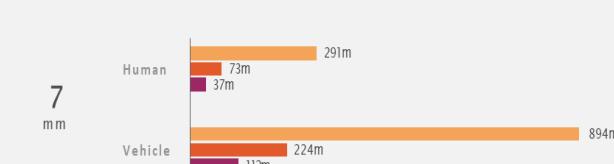
**12 µm**



## Dimensions (mm)



## Accessories



# Thermal & Optical Bi-Spectrum Network Bullet Camera



SNTPC2553DRT

256x192



- Thermal: 256x192, 12  $\mu$ m, 7/10 mm
- Optical: 4MP, 2880x1620, 8 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/ Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Built-in speaker & alarm light
- LED Temperature Display
- 35-55 m IR
- Temp. Accuracy:  $\pm 2^\circ\text{C}$  /  $\pm 2\%$
- Temp. Range:  $-20^\circ\text{C}$ ~ $150^\circ\text{C}$
- Interface: 1Audio In/Out, 2 Alarm In/Out, RS485, Micro SD card
- DC12V/DC24V/POE (802.3af)
- IP66

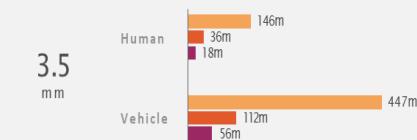
## Application Scenarios

Perimeter Protection, Indoor/Outdoor Fire Prevention, Industrial Temperature Measuring...

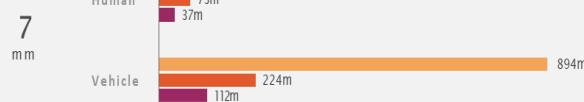
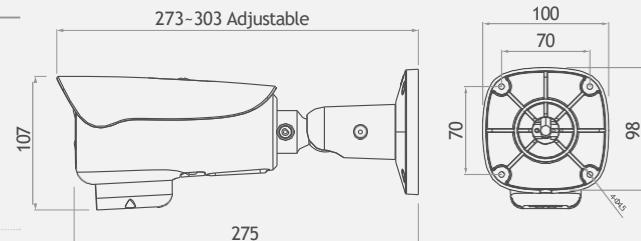
256x192

12  $\mu$ m

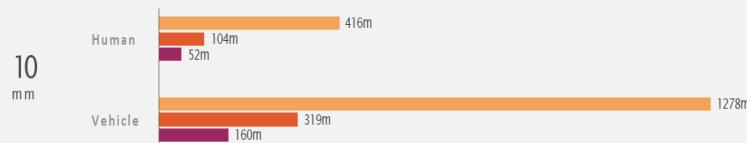
● Detection    ● Recognition    ● Identification



## Dimensions (mm)



## Accessories



Junction Box  
SNCBK649B



Pole Mount Bracket  
SNCBK627D

# Thermal & Optical Bi-Spectrum Network Bullet Camera



SNTPC4233DJT

400x300



- Thermal: 400x300, 17 $\mu$ m, 8/15/25/35/50 mm
- Optical: 2MP, 1920x1080, Motorized Lens : 5~50 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- 100 m IR
- Temp. Accuracy:  $\pm 2^{\circ}\text{C}$  /  $\pm 2\%$
- Temp. Pre-alarm & Alarm
- Temp. Threshold/Difference/Rise Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Range: -40 $^{\circ}\text{C}$ ~150 $^{\circ}\text{C}$ , Customizable
- Interface: 1Audio In/Out, 2 Alarm In/Out, RS485
- DC12V/POE+ (802.3at)
- IP66

## Application Scenarios

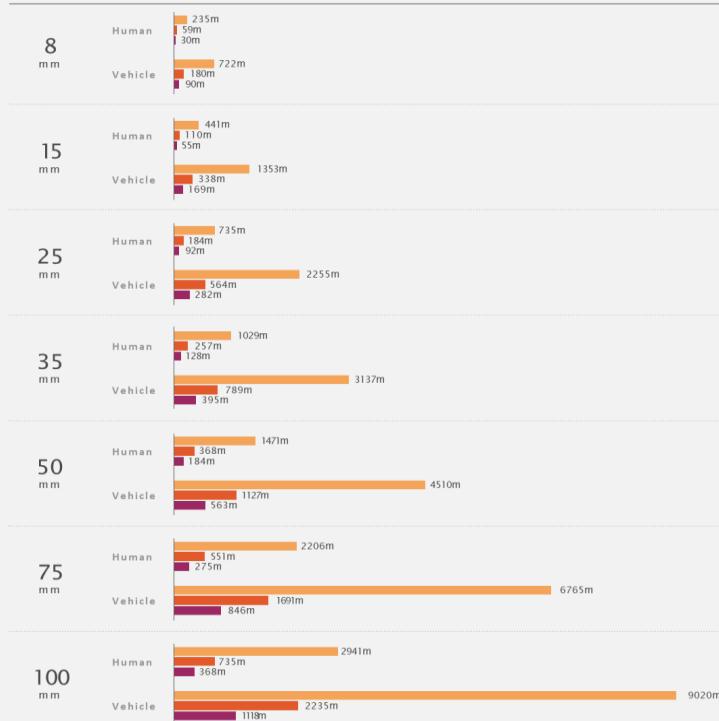
Perimeter Protection, Indoor/Outdoor Fire Prevention, Industrial Temperature Measuring...

400x300

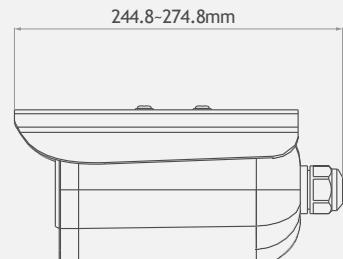
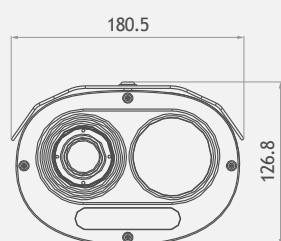
17 $\mu$ m

Human: 1.8x0.5 m    Vehicle: 4x1.5 m

● Detection    ● Recognition    ● Identification



## Dimensions (mm)



## Accessories



SNBK346



SNBK350

# Thermal Network Bullet Camera



## SNTPC4207KT

Parameters vary according to device models.

400×300



Human  
Detection



Vehicle  
Detection



IVS



Temperature  
Accuracy



POE

- Thermal: 400×300, 704x576, 17µm, 9/15/25/35/50 mm
- Deep Learning: Human/Vehicle/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Temp. Accuracy: ±2°C / ±2%
- Temp. Pre-alarm & Alarm
- Temp. Threshold/Difference/Rise Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Range: -40°C~150°C, Customizable: ≤900°C
- Interface: 1Audio In/Out, 2 Alarm In/Out, RS485, Micro SD Card
- DC12V/POE (802.3af)
- IP66

## Application Scenarios

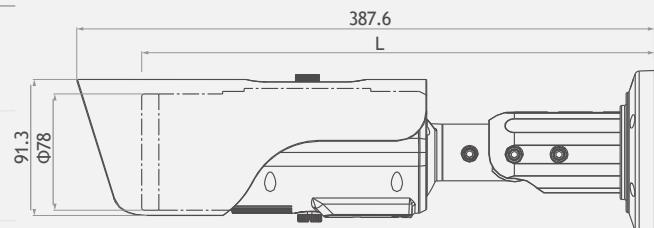
Perimeter Protection, Industrial Temperature Measuring...

400×300

17µm

Human: 1.8×0.5 m      Vehicle: 4×1.5 m

## Dimensions (mm)



● Detection      ● Recognition      ● Identification



## Accessories



Junction Box

SNCBK649B



Pole Mount Bracket

SNCBK627D

# Thermal Network Bullet Camera



SNTPC6406KT

640x512



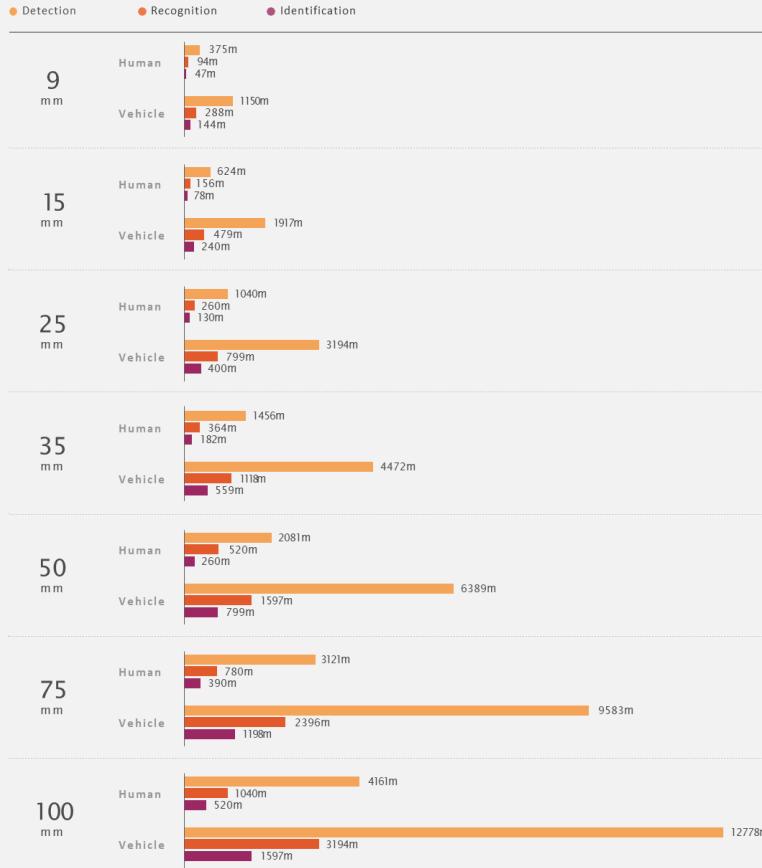
- Thermal: 640x512, 12 µm, 9/15/25/35/50 mm
- Deep Learning: Human/Vehicle/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Temp. Accuracy:  $\pm 2^\circ\text{C}$  /  $\pm 2\%$
- Temp. Pre-alarm & Alarm
- Temp. Threshold/Difference/Rise Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Built-in Microphone
- Temp. Range:  $-20^\circ\text{C}$ ~ $150^\circ\text{C}$ , Customizable:  $\leq 550^\circ\text{C}$
- Interface: 1 Audio In/Out, 2 Alarm In/Out, CVBS, RS485, Micro SD Card
- DC12V/AC24V/POE (802.3af)
- IP66

## Application Scenarios

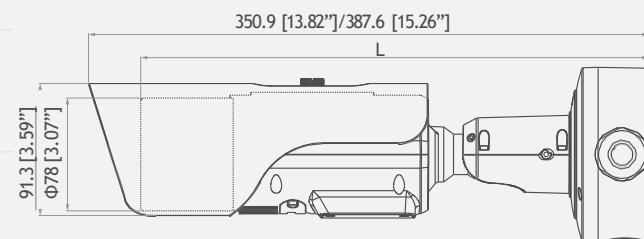
Perimeter Protection, Industrial Temperature Measuring...

640x512

12 µm



## Dimensions (mm)



## Accessories



Junction Box

SNCBK649B

# Thermal & Optical Mini Bi-Spectrum PTZ Camera



**SNTPT6436QF**  
**SNTPT4233QF**

**640×512/400×300**



- Thermal: 640×512/400×300, 8/9/15/25 mm; Motorized Lens: 25 mm
- Optical: 4MP, 2592×1520, 30X, 5.3~159 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Worm Gear and Worm Drive PTZ; Power off Self-locking
- Anti-frozen
- Pan: 360° Tilt: +90°~90°
- White LED: 30 m
- Support 3 temperature measurement rule types (spot, line, area)
- Preset Point Temperature Measuring
- Temp. Accuracy: ±2°C / ±2%
- Temp. Range: -20°C~150°C, Customizable
- Interface: 1Audio In/Out, 1Alarm In/Out, CVBS, RS485
- DC24V
- IP66

## Application Scenarios

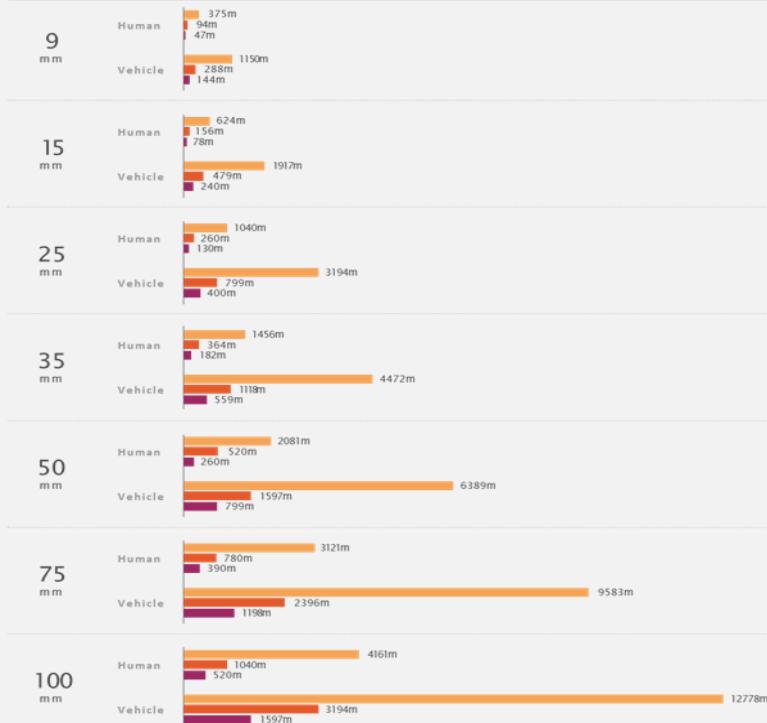
Perimeter Protection, Indoor Fire Prevention, Industrial Temperature Measuring...

**640x512**

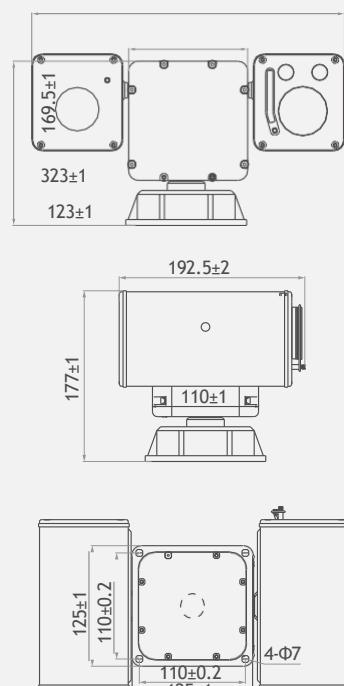
12  $\mu$ m

Human: 1.8×0.5 m      Vehicle: 4×1.5 m

● Detection      ● Recognition      ● Identification



Dimensions (mm)



# Thermal & Optical Medium Bi-Spectrum PTZ Camera



SN-TPT6436LZ

SN-TPT4233LZ

640×512/400×300

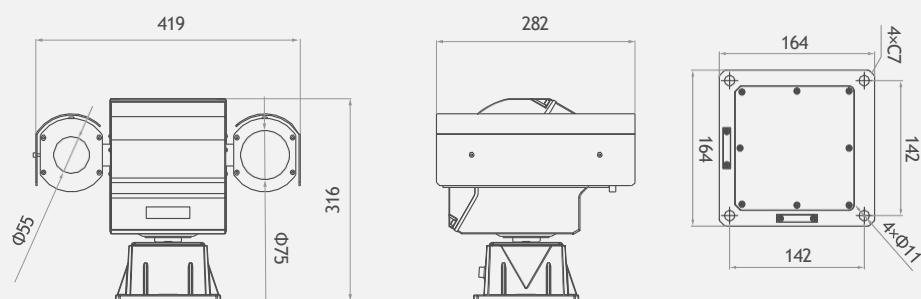


- Thermal: 640×512/400×300, 8/9/15/25/35/50 mm, Motorized Lens: 25/50 mm
- Optical: 4MP, 2592×1520, 30X, 5.3~159 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Worm Gear and Worm Drive PTZ; Power off Self-locking
- Anti-frozen
- Pan: 360° Tilt: +90°~90°
- Support 3 temperature measurement rule types (spot, line, area)
- Preset Point Temperature Measuring
- Temp. Accuracy:  $\pm 2^{\circ}\text{C}$  /  $\pm 2\%$
- Temp. Range:  $-20^{\circ}\text{C}$ ~ $150^{\circ}\text{C}$ , Customizable
- Interface: 2 Audio In/Out, 9 Alarm In/4 Alarm Out, CVBS, RS485
- DC36V
- IP66

## Application Scenarios

Perimeter Protection, Indoor Fire Prevention, Industrial Temperature Measuring...

## Dimensions (mm)



# Thermal & Optical Medium Bi-Spectrum PTZ Camera

SNTPT4233LPZ

400×300

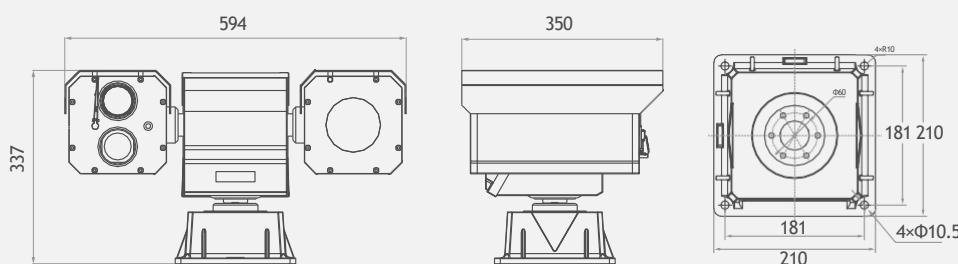


- Thermal: 400×300, Motorized Lens: 75/100 mm
- Optical: 5MP, 2560×1920, 40x, 4.98~199.2 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Ship
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Worm Gear and Worm Drive PTZ; Power off Self-locking
- Anti-frozen
- Pan: 360° Tilt: +90°~90°
- 800m IR
- Support 3 temperature measurement rule types (spot, line, area)
- Preset Point Temperature Measuring
- Temp. Accuracy:  $\pm 2^{\circ}\text{C}$  /  $\pm 2\%$
- Temp. Range: -40°C~150°C, Customizable
- Interface: 2 Audio In/Out, 9 Alarm In/4 Alarm Out, CVBS, RS485
- DC36V
- IP66

## Application Scenarios

Medium Perimeter Protection, Fire Prevention...

## Dimensions (mm)



# Thermal & Optical Medium Bi-Spectrum PTZ Camera

SN-TPT6436ZZ

SN-TPT4233ZZ

640×512/400×300

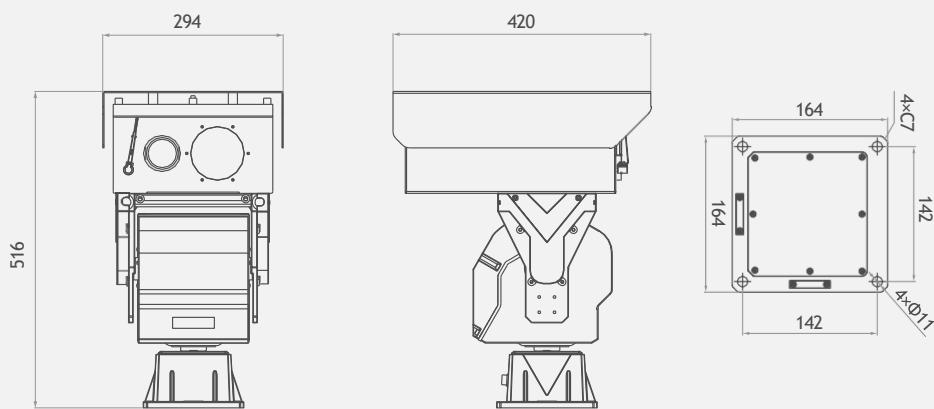


- Thermal: 640×512/400×300, Motorized Lens: 50/75/100 mm
- Optical:
  - 2MP, 1920×1080, 37X, 6~222 mm
  - 4MP, 2592×1520, 40X, 4.98~199.3 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Ship
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area
- Worm Gear and Worm Drive PTZ; Power off Self-locking
- Anti-frozen
- Pan: 360° Tilt: +40°~75°
- Interface: 2 Audio In/Out, 9 Alarm In/4 Alarm Out, CVBS, RS485
- DC36V
- IP66

## Application Scenarios

Medium Perimeter Protection, Fire Prevention...

## Dimensions (mm)



# Thermal & Optical Large Bi-Spectrum PTZ Camera

SN-TPT6436HZ

SN-TPT4233HZ

Parameters vary according to device models.

640×512/400×300

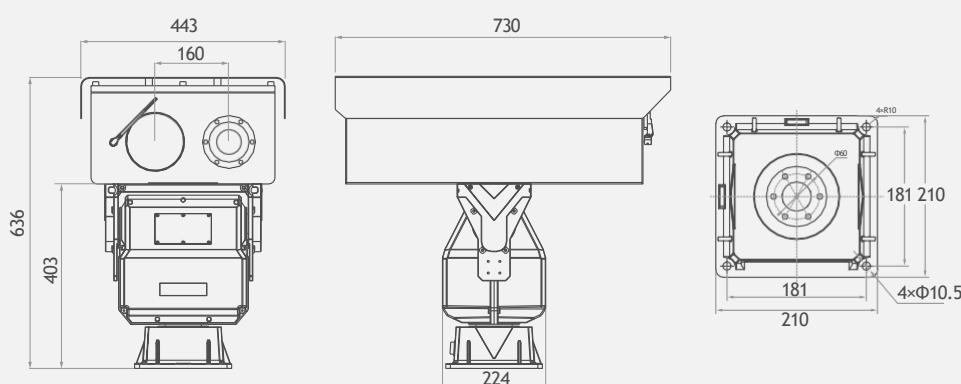


- Thermal: 640×512/400×300, Motorized Lens: 75/100mm, 30~150mm
- Optical:
  - 4MP, 2592×1520, 32X, 12.5~400 mm
  - 4MP, 2592×1520, 32X, 15.6~500 mm
  - 4MP, 2592×1520, 60X, 12.5~750 mm
  - 4MP, 2592×1520, 60X, 16.7~1000 mm
  - 4MP, 2592X1440, 86X, 10~860mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Ship
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area
- Worm Gear and Worm Drive PTZ; Power off Self-locking
- Anti-frozen
- Pan: 360° Tilt: +40°~+45°
- Interface: 2 Audio In/Out, 3 Alarm In/Out, CVBS, RS485
- DC36V
- IP66

## Application Scenarios

Medium Perimeter Protection, Fire Prevention...

## Dimensions (mm)



# Thermal & Optical Large Bi-Spectrum PTZ Camera

SN-TPT6436MZ

SN-TPT4233MZ

Parameters vary according to device models.

640×512/400×300

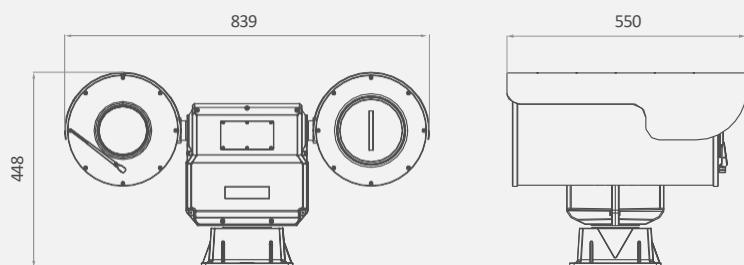


- Thermal: 640×512/400×300, Motorized Lens: 30~150 mm
- Optical: 4MP, 2560×1440, 86X, 10~860 mm
- Deep Learning: Human/Vehicle/Fire & Smoke/Fire Spot/Ship
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area
- Worm Gear and Worm Drive PTZ; Power off Self-locking
- Anti-frozen
- Pan: 360° Tilt: +40°~75°
- Interface: 2 Audio In/Out, 6 Alarm In/ 4 Alarm Out, CVBS, RS485
- DC48V, Max 300W
- IP66

## Application Scenarios

Medium Perimeter Protection, Fire Prevention...

## Dimensions (mm)



# Explosion-proof Bullet Camera

SN-TPH6406DA

SN-TPH4203DA

Parameters vary according to device models.



640×512/400×300

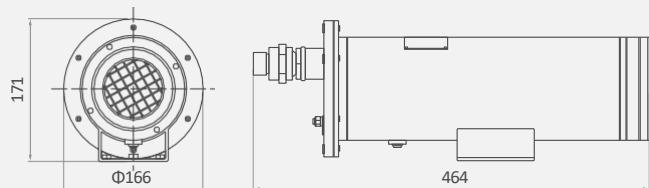


- 316L Stainless Steel
- Ex d II C T6 Gb / Ex tD A21 IP68 T80°C W
- Thermal: 640×512/400×300, 8/9/15/25/35/50 mm  
Motorized Lens: 25/50 mm
- Deep Learning: Human/Vehicle/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Temp. Pre-alarm & Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Accuracy: ±2°C / ±2%
- Temp. Range: -20°C ~150°C (-4°F ~302°F), Customizable
- IP68

## Application Scenarios

Perimeter Protection, Indoor/Outdoor Fire Prevention, Industrial Temperature Measuring...

### Dimensions (mm)



### Accessories



Wall Mount Bracket  
SN-BK401-SS



Junction Box  
SN-BK400



Flexible Tube



Gland Box

# Explosion-proof Bi-spectrum PTZ Camera

SN-TPT6436PA

SN-TPT4233PA

Parameters vary according to device models.



640×512/400×300

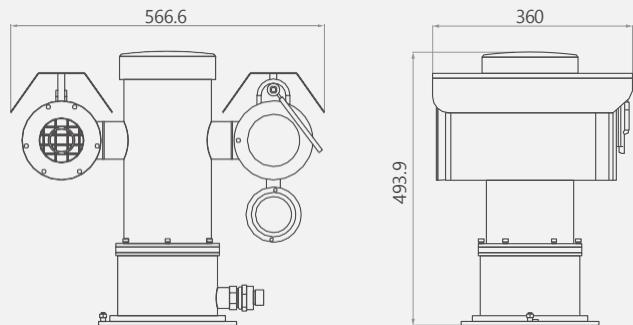


- 316L Stainless Steel
- Ex d II C T6 Gb / Ex tD A21 IP68 T80°C
- Thermal: 640×512/400×300, 8/9/15/25/35/50 mm  
Motorized Lens: 25/50 mm
- Optical: 4MP, 2592×1520, 30X, 5.3 mm -159 mm
- Deep Learning: Human/Vehicle/Smoke & Fire/Fire Spot/Smoking
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Pan: 360° Tilt: +90°~90°
- IR: 200 m
- Temp. Pre-alarm & Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Accuracy: ±2°C / ±2%
- Temp. Range: -20°C ~150°C (-4°F ~302°F), Customizable
- IP68

## Application Scenarios

Perimeter Protection, Indoor/Outdoor Fire Prevention, Industrial Temperature Measuring...

### Dimensions (mm)



### Accessories

Wall Mount Bracket  
SN-BK402-SSJunction Box  
SN-BK400

Flexible Tube



Gland Box

# Small Intelligent Thermal Module



**SN-TPC6406VT**

640 × 512

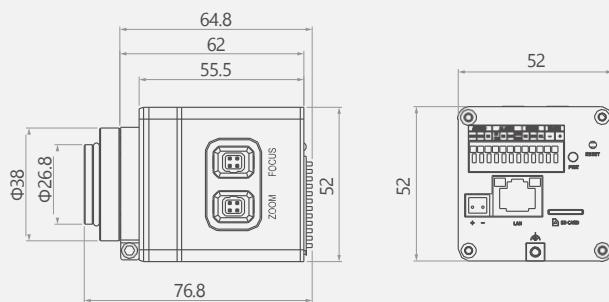


- Thermal:  $640 \times 512$ ,  $12\mu\text{m}$ ,  $8\text{-}14\mu\text{m}$ ,  $9/15/25/35/50\text{ mm}$   
Motorized Lens:  $25/50/75/100\text{ mm}$   
Motorized Zoom Optional
- Deep Learning: Human/Vehicle/Smoke & Fire/Fire Spot/Smoking/Ship
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Focus-free (Fixed Lens)
- Anti-burning
- Temp. Pre-alarm & Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Accuracy:  $\pm 2^\circ\text{C}$  /  $\pm 2\%$
- Temp. Range:  $-20^\circ\text{C} \sim 150^\circ\text{C}$  ( $-4^\circ\text{F} \sim 302^\circ\text{F}$ ) Customizable:  $\leq 550^\circ\text{C}$  ( $1022^\circ\text{F}$ )
- Interface: Alarm I/O, Audio I/O, RS485, Micro SD card
- $64.8 \times 52 \times 52\text{ mm}$  ( $2.55 \times 2.05 \times 2.05\text{ inch}$ ) without lens
- DC12V

## Application Scenarios

Suitable for equipment integration such as shields/ptz, inspection robots, track robots, etc.

### Dimensions (mm)



# Small Intelligent Thermal Module

SN-TPC4201VT

400 × 300

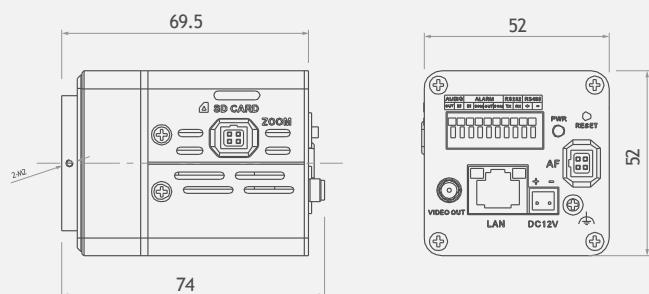


- Thermal: 400 × 300, 17μm, 8/9/15/25/35/50 mm  
Motorized Lens: 25/50/75/100 mm
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area, People Counting
- Anti-burning
- Temp. Pre-alarm & Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Accuracy:  $\pm 2^{\circ}\text{C}$  /  $\pm 2\%$
- Temp. Range:  $-20^{\circ}\text{C} \sim 150^{\circ}\text{C}$  ( $-4^{\circ}\text{F} \sim 302^{\circ}\text{F}$ )  
Customizable:  $\leq 900^{\circ}\text{C}$  ( $1652^{\circ}\text{F}$ )
- Interface: Alarm I/O, Audio I/O, RS485, CVBS, Micro SD card
- 74× 52 × 52 mm (2.91× 2.05 × 2.05 inch)
- DC12V

## Application Scenarios

Suitable for equipment integration such as shields/ptz, inspection robots, track robots, etc.

## Dimensions (mm)



# Intelligent Thermal Module



SN-TPC4203AT  
SN-TPC4201AT

400×300



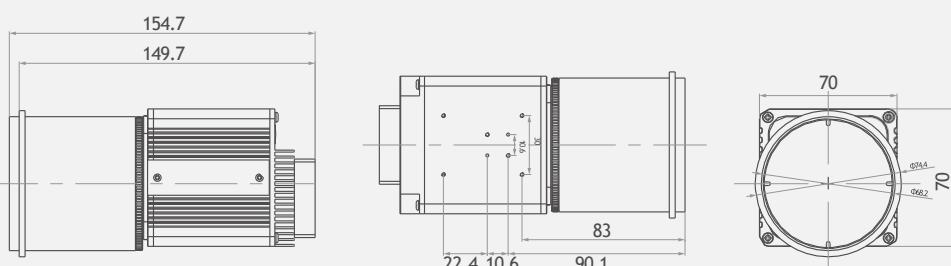
Human Detection, Vehicle Detection, Ship Detection, Smoke/Fire Detection, Anti-burning

- Thermal: 400 × 300, 17 $\mu$ m, 8~14 $\mu$ m, 8/15/25/35/50 mm  
Motorized Lens: 25/50/75/100 mm
- Deep Learning: Human/Vehicle/Smoke & Fire/Fire Spot/Smoking/Ship
- IVS: Intrusion, Single/Double Line Crossing, Loitering, Wrong-way, Enter Area, Leave Area
- People Counting
- Anti-burning
- Temp. Pre-alarm & Alarm
- Support 3 temperature measurement rule types (spot, line, area)
- Temp. Accuracy:  $\pm 2^{\circ}\text{C}$  /  $\pm 2\%$
- Temp. Range:  $-20^{\circ}\text{C} \sim 150^{\circ}\text{C}$  ( $-4^{\circ}\text{F} \sim 302^{\circ}\text{F}$ )  
Customizable:  $\leq 900^{\circ}\text{C}$  (1652 $^{\circ}\text{F}$ )
- Interface: Alarm I/O, Audio I/O, RS485, Micro SD card
- DC12V

## Application Scenarios

Suitable for equipment integration such as shields/PTZ, inspection robots, track robots, etc.

## Dimensions (mm)



# Effective Coverage

The Johnson Criterion is the field of infrared thermography used to determine the minimum resolution required to detect objects. The Johnson Criteria levels for infrared thermography are as follows:

**Detection:** At least 15 pixels are required to distinguish objects in the background and in the image.

**Recognition:** At least 6 pixels are required to classify objects (people, vehicles, animals, etc.).

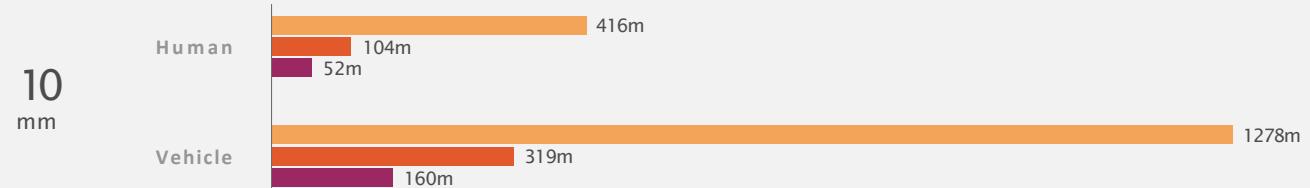
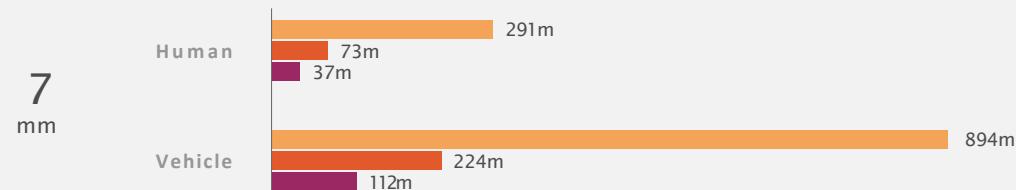
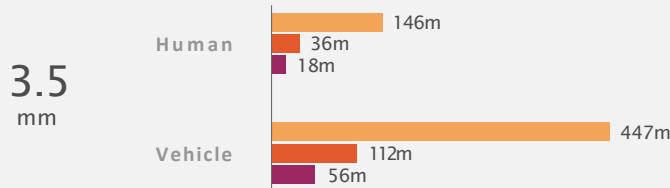
**Identification:** At least 12 pixels are required to identify an object and its features, for example, a human holding a wooden stick.

**256x192**

**12  $\mu\text{m}$**

Human: 1.8x0.5 m      Vehicle: 4x1.5 m      Fire: 1x1 m

● Detection      ● Recognition      ● Identification



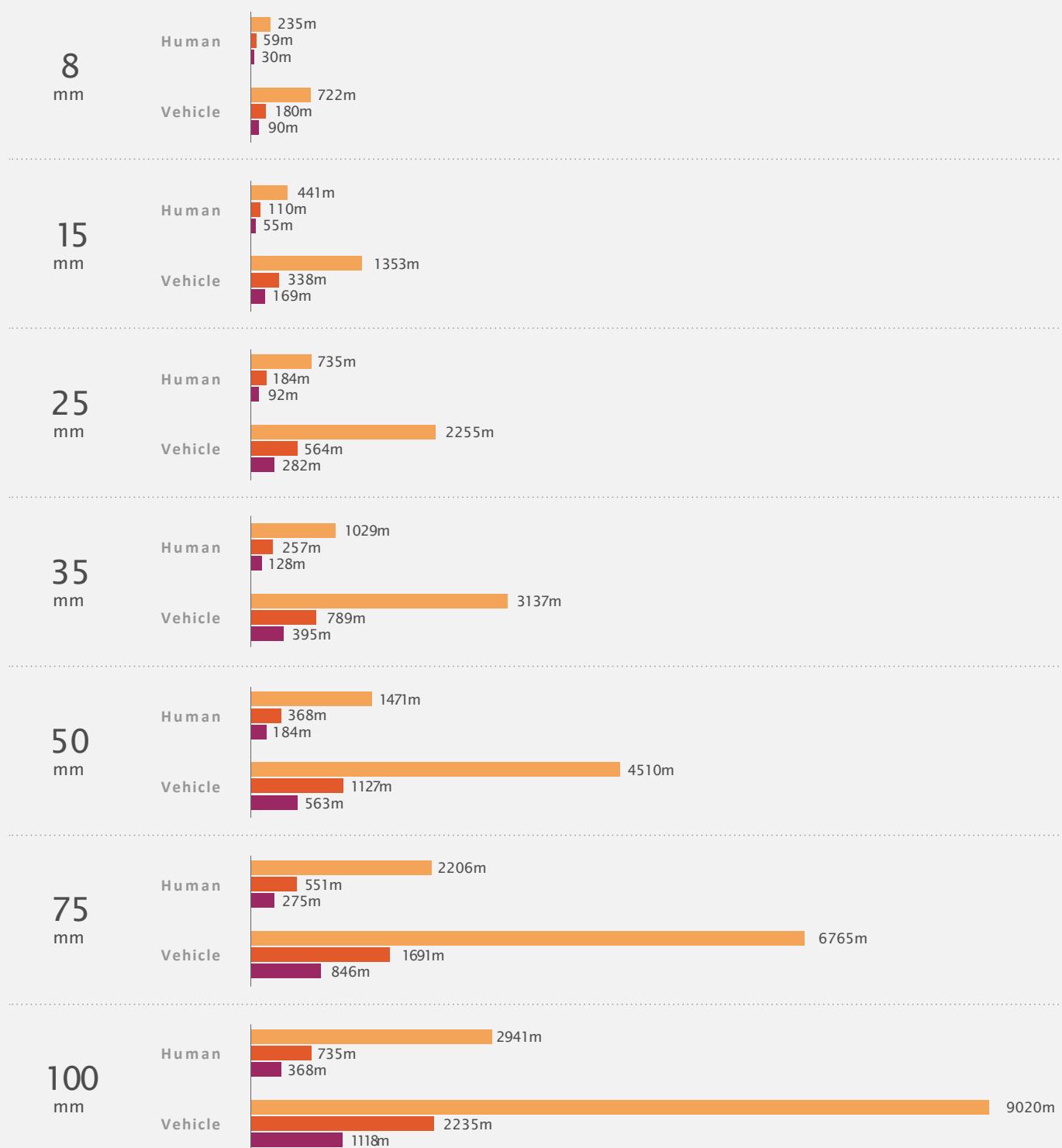
400x300

17  $\mu$ m

Human:  
1.8x0.5 m

Vehicle:  
4x1.5 m

● Detection      ● Recognition      ● Identification

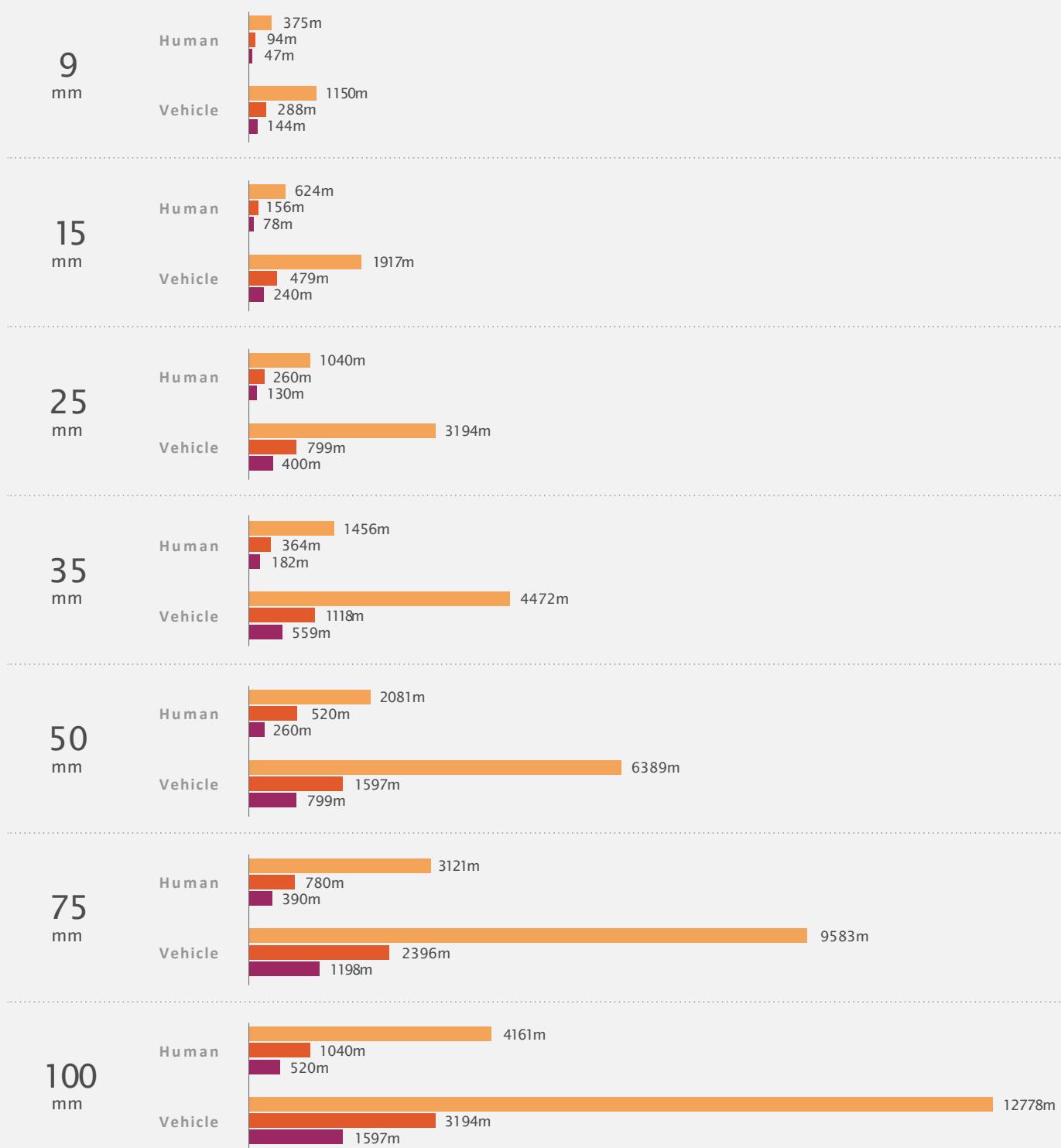


# 640x512

12  $\mu$ m



● Detection      ● Recognition      ● Identification





Fire Spot:

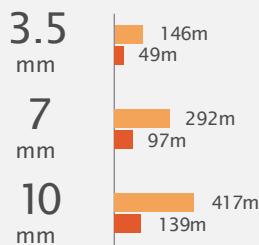
1x1 m

● Detection

● Recognition

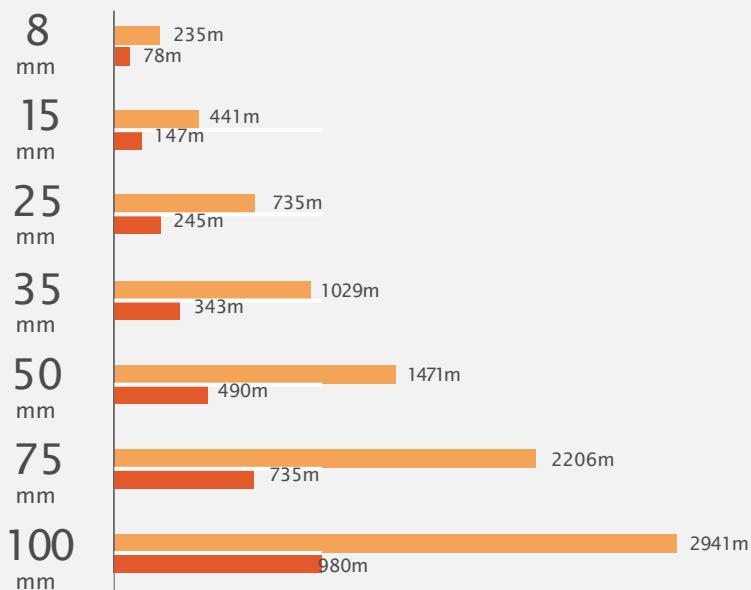
**256x192**

12  $\mu\text{m}$



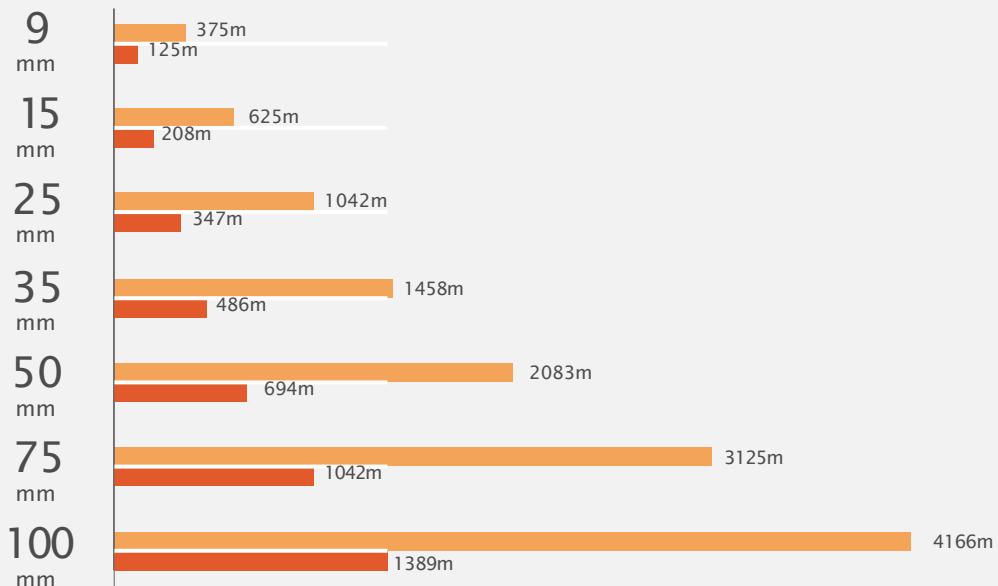
**400x300**

17  $\mu\text{m}$



**640x512**

12  $\mu\text{m}$



# Smart Thermal Product Family

640	Module SNTPC6406VT	Bullet SNTPC6406KT	Bi-spectrum PTZ SNTPT6436QF	Bi-spectrum PTZ SNTPT6436LZ	Bi-spectrum PTZ SNTPT6436ZZ	Bi-spectrum PTZ SNTPT6436HZ	Bi-spectrum PTZ SNTPT6436MZ		
400	Module TPC4201VT	Module TPC4203AT TPC4201AT	Bi-spectrum PTZ TPT4233QF	Bullet SNTPC4203KT SNTPC4201KT	Bi-spectrum Bullet SNTPC4233DJT	Bi-spectrum PTZ SNTPT4233LZ	Bi-spectrum PTZ SNTPT4233ZZ	Bi-spectrum PTZ SNTPT4233HZ	Bi-spectrum PTZ SNTPT4233MZ
256	Bi-spectrum Cube SND2	Bi-spectrum Cube SND2L	Bi-spectrum Turret SNTPC2553CT SNTPC2552CT	Bi-spectrum Bullet SNTPC2553DRT					
Explosion Proof	Bullet SNTPH6406DA SNTPH4203DA	Bi-spectrum PTZ SNTPT6436PA SNTPT4233PA							



Independent  
Development



Complete  
Category



Customized  
Service



## 2012

Year Founded



## 18+

Employees



## NDAA- TAA

100% Realiable



## Real Safe

Products



## Exclusive Partnerships

Limited partners in Europe

No internet sales

Stock for Partners

Low ODM/OEM possible



## Support

Own firmware

Integration ( API - SDK )

Side Surveys

Demo Truck for Roadshows

FAT – SAT Test



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