



EOS-TVC Series

Intelligent dual-sensor, long-range IR camera system

Overview

Introduction

Our **EOS-TVC** range of intelligent dual-sensor infrared camera systems has been designed and developed using:

1. The latest generation of uncooled infrared technology and high-definition visible imaging technology, with the aim of providing long-range surveillance day and night.
2. The infrared thermal imaging system utilises a 17-micron uncooled focal plane array (FPA) detector with ultra-fine resolution, featuring high sensitivity and a resolution of 640×512 or 384×288, as well as a miniaturised infrared lens designed using AS+DOE continuous zoom optical technology.
3. Advanced digital circuits and image processing algorithms deliver sharp, smooth images;
4. The low-light CMOS sensor, operating in dual-colour Full HD and black-and-white modes, combined with a compact long-focus zoom lens, significantly reduces the size and weight of the visible camera, offering users considerable ease of use during installation and operation.
5. Thanks to a 360-degree omnidirectional pan-tilt system, the search and observation range extends from 4,000 m to 18,000 m.
6. The internal industrial-grade onboard electronic control system ensures highly stable control of the camera during zooming, focusing, mode switching and rotation (tilt/pan) of the Pan-Tilt system.
7. The housing is made from ultra-high-strength aluminium alloy to achieve IP66 protection, ensuring longer and more stable camera operation in harsh outdoor environments.

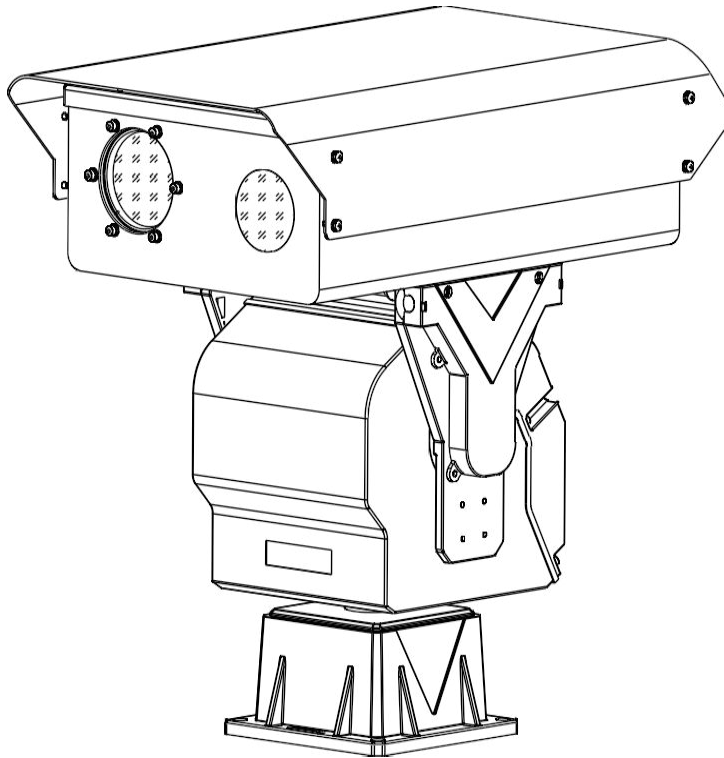
This dual-sensor camera can also be optionally fitted with a super-homogenised NIR laser serving as a light source. Combined with a low-light HD camera, it enables detailed observation of targets detected by night-time thermal imaging, thus forming a three-sensor camera that combines infrared thermal imaging, the visible spectrum and the NIR laser for day and night reconnaissance, making it suitable for long-range target surveillance in all weather conditions. It can also be supplemented with a laser rangefinder, a Beidou/GPS system, an electronic compass and other sensors and accessories, enabling the acquisition of precise location data on targets and long-range scenarios, and forming a multifunctional long-range surveillance system for situational awareness.

These dual-sensor cameras can also operate with the dedicated software of the DF3000/FR4000 key area defence platform, which enables the implementation of its intelligent functions such as regional intrusion detection, cross-border intrusion detection, detection of moving groups in multiple scenarios, selected 3D zoom/positioning, automatic target tracking, panoramic mosaic, radar linkage, etc., and to achieve unattended automatic operation.

This series of cameras is equipped with a built-in intelligent hotspot detection algorithm, capable of automatically detecting flames, vehicles, people and other heat-emitting targets at long range; it can detect the source of a fire and display an alert within a radius of 6,000 m. Thanks to the dedicated FR4000 software of the fire alert platform, it offers functions for automatic scanning, automatic processing of emergency information, automatic recording, automatic calculation and calibration of the fire location, virtual area management, GIS map information display, access to meteorological data, hierarchical management, dynamic monitoring of the fire situation, rescue strategy and other functions. This camera is suitable for forest fire prevention, monitoring of pastures, coal mines, large grain silos and other long-range automatic monitoring applications for early fire warning.



Product Key feature



1. It incorporates an infrared thermal camera, an HD visible camera, a video encoding system, a pan/tilt function and a control system electronic system;
2. Visible imaging uses a low-light CMOS sensor in dual-colour/black-and-white Full HD mode and a compact 30x continuous zoom lens;
3. Latest-generation VOx detectors based on MEMS technology, with a detection sensitivity (NETD) of up to 50 mk, offering superior sensitivity to conventional products for finer image quality that is less affected by fog, rain and snow;
4. Unique advanced AS + DOE optical design for continuous zoom and high-precision 3CAM optical mechanical design, providing stable and smooth zooming, enabling large-scale search and long-range recognition;
5. Excellent image uniformity correction technology, delivering good uniformity and dynamic range;
6. SDE image detail enhancement technology, delivering a smooth, noise-free image; switching between various pseudo-colour and warm black/warm white polarity image modes; adaptable; facilitates the detection of hidden, low-contrast targets;
7. The visible light system is based on a low-light CMOS sensor design in dual-colour/black-and-white Full HD mode, with a compact, small and lightweight 30x continuous zoom lens;
8. It is equipped with a robust CNC pan/tilt system, allowing observation with
9. 360° continuous rotation, with no blind spots and stable operation
10. Full-range pan and tilt allow for search and observation over a distance of 4,000 to 6,000 m.
11. Supports anti-glare and anti-sunburn protection, supports multiple scene configuration modes, and adapts to different situations;
12. Supports intelligent functions such as boundary crossing/intrusion detection and target tracking to enable unattended operation;
13. Supports hotspot detection and alerts; the hotspot detection algorithm is designed using raw front-end data per frame, with a shorter response time, faster target locking speed, and precise positioning with no delay; the alarm threshold, target size and number can be adjusted remotely.
14. Thanks to the IP network design, a network cable enables the interactive transmission of all video, alarm and positioning data. System networking and implementation are straightforward;
15. The camera assembly consists of an ultra-durable aluminium alloy housing, with an IP66 rating, resistant to rain and dust, and suitable for harsh environments.
16. Optional: laser illuminator for detailed observation of targets detected by night-time thermal imaging; three-band camera enabling detection via infrared thermal imaging, and day and night recognition using visible light and near-infrared laser;
17. Optional: laser rangefinder, Beidou/GPS, electronic compass and other sensors to form a remote surveillance system providing situational awareness for multiple users.

Product Specification



Thermal characteristics

Sensor	6th generation uncooled focal plane array VOx detector	
Resolution	384 × 288 pixels	640 × 512 pixels
Spectral range	7.5 to 14 μm	
NETD	50 mK (at 25 °C, F1.0)	

Lens control

1. Zoom: motorised zoom.
2. Focus: manual/automatic focus (3A adaptive active focus algorithm, supports multiple trigger modes with high precision and speed).
3. Optical mechanism: 3CAM mode and AS+DOE optical structure, high infrared transmission, zoom process without virtual focus, smaller axis

Image processing

1. Image enhancement: SDE digital image processing.
2. Pseudo-colour polarity: 16 pseudo-colours and black and white, conversion to black and white.
3. Image parameters: automatic gain control (AGC), brightness and contrast.
4. Digital zoom: 2X, 4X digital magnification.
5. NUC correction: automatic/manual correction, background correction.
6. Hotspot analysis: support for alarm function with display of multiple hotspot zones.

Thermal spot detection and alert

1. Alarm threshold: 255 adjustable levels.
2. Target size: the target range can be set to automatically identify targets of different sizes.
3. Number of alert targets: adjustable from 1 to 16, with automatic selection of the most significant target to display.
4. Alarm mode: alarm frame superimposed on the video + switchable volume (or data feedback); multiple alarm mode, intuitive and easy to read.
5. Front-end algorithm: optimised fast front-end processing algorithm, based on analysis Data from the original heat map per frame, with an alarm response time of 0.1 seconds, with no delay or loss of information.
6. Remote parameter adjustment: all alarm settings and instructions can be configured remotely via the video OSD menu, offering great versatility.
7. Secondary development: provision of a free, easy-to-use SDK suitable for secondary development.
8. Dedicated platform: (Selection of a dedicated platform for fire pre-alert, featuring automatic scanning, alerting, GIS location, dynamic fire progression tracking, fire rescue strategy and other functions, to form a professional system)

Optical imaging specifications

Lens size	8 ~ 320 mm	8 to 500 mm	12.5 ~ 750 mm	16.7–1,000 mm
Zoom	40X	62X	60X	60X

Camera

1. CMOS, integrated dual ICR filter with day/night switch;
2. Resolution: 2 MP, 1920 x 1080
3. Illumination: 0.001 lux in high-sensitivity colour, 0.0001 lux in black and white;
4. Encoding: H.265/H.264 video format, multi-stream support;
5. Video bitrate: 32 Kbps–16 Mbps, 60 Hz, 30 frames per second
6. Support for local storage on SD card, support for regional intrusion detection, cross-boundary intrusion detection, , audio anomaly detection and alarm linkage;
7. Support for AFR fog penetration, electronic stabilisation, backlight suppression, 3D digital noise reduction, infrared overexposure protection, and automatic back focus (ABF) adjustment

Lens

1. 200 X digital zoom;
2. HD infrared correction: optical IR correction design, daytime focus;
3. Automatic aperture: supported;
4. Wide day-night spectrum: visible wide-spectrum window from 0.4 to 0.75 μm and NIR narrow-spectrum window from 0.8 to 0.95 μm with independent day-night dual-pass window to improve the signal-to-noise ratio of imaging light and stray light.
5. Preset position: precision potentiometer, 5 V DC, zoom focus feedback.



General specifications

- Housing**
1. Material: aluminium alloy housing, waterproof;
 2. Structure: integrated dual-window design;
 3. 4 mm microcrystalline infrared HLIN optical glass with high anti-reflection efficiency, transmittance > 98%;
 4. Surface: PTA coating, resistant to seawater corrosion;
 5. Ingress protection rating: IP66 (IP67 optional)
 6. Temperature control: the entire system utilises + wide-temperature-range electronic and optoelectronic components, with integrated isothermal control elements for heating and heat dissipation, enabling operation in both low- and high-temperature environments;
 7. Interface: waterproof aviation-grade connector

- PTZ**
1. Load capacity: 30/50 kg PTZ CNC
 2. Rotation: pan: 0–360°, tilt: -45°–+45°
 3. Rotation speed: pan: 0.01° to 30°/s, tilt: 0.01°/s to 15°/s, supports adjustment of lens focus speed.
 4. 255 presets, supports zoom and lens focus presets.
 5. Accuracy: ±0.1°
 6. Support for 6 patrol lines, 1 apple-skin scan, 1 patrol line.
 7. Continuous monitoring: preset/automatic patrol/automatic scan.
 8. Power-off memory: supported (allows restoration of the position prior to power-off, patrol status and line scanning status)
 9. Zero-point correction: supports remote correction of the north zero point.
 10. Power consumption: approx. 120 W

- Interface**
1. Network interface: RJ45 1-channel, 10/100 Base-T adaptive (integrated video output, RS422/485 communication control);
 2. Network protocols: TCP/IP, UDP, IPv4/v6; support for HTTP, RTP, RTSP, NFS, DHCP, NTP, SMTP, SNMPv1/v2c/v3, UPNP, PPPoE, DNS, FTP; support for PSIA, ONVIF 2.0, GB28181 and other network protocols.
 3. Power supply: 24 V AC/DC, reverse polarity protection;
 4. Physical interface: waterproof aviation connector

General specifications

- Enhancements**
1. Protection against intense light: supports anti-glare function.
 2. Temperature compensation: non-thermal imaging design; thermal imaging clarity is not affected by temperature.
 3. Scene mode: supports multiple configuration scenarios, adapts to different environmental applications.
 4. Day/Night setting: Grouped D/N settings for various predefined groups; day settings 1–40, night settings 41–80; automatically switches to day or night mode depending on ambient light levels, adapting to different spatial and temporal scenarios.
 5. Lens servo: supports lens preset, focal length return and focal length positioning functions.
 6. Azimuth information: supports angle query/feedback and real-time positioning, supports real-time display of azimuth video overlay.
 7. Remote maintenance: supports remote updating of embedded programs, facilitating after-sales maintenance.
 8. Parameter settings: remote operation via the OSD menu.

- Environmental parameters**
1. Operating temperature: -25 °C to +60 °C;
 2. Storage temperature: -35 °C to 70 °C;
 3. Humidity: <90%
 4. Shock resistance: 0.2 g (in accordance with GB/T15211-2013, section 5.4, severity level 2);
 5. Shock resistance: 15 g (in accordance with GB/T15211-2013, 5.3, severity level 3);
 6. Lightning protection: interface circuit with integrated surge protection, power supply 4,000 V, signal 2,000 V;
 7. Salt spray resistance: continuous spraying for 96 hours at a pH between 6.5 and 7.2, with no surface deterioration.
 8. Protection rating: IP66

- Additional features**
1. Windscreen wiper: (or integrated windscreen wiper);
 2. Windscreen washer: (small external spray, integrated water tank, frost-resistant without risk of damage, does not affect the operation of the main unit);
 3. Extension module: (Beidou/GPS, laser rangefinder and other optional functions);
 4. Optical network: (integrated fibre optic module, single-mode fibre output, improved anti-jamming protection).

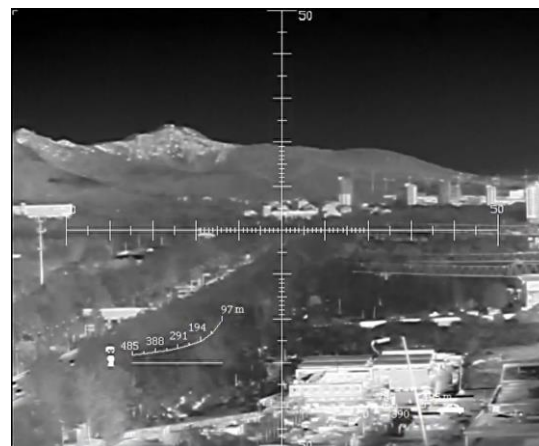
Smart Features



Temperature measurement



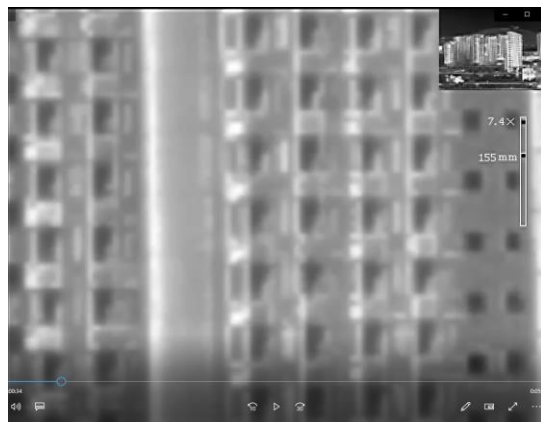
Fire point detection



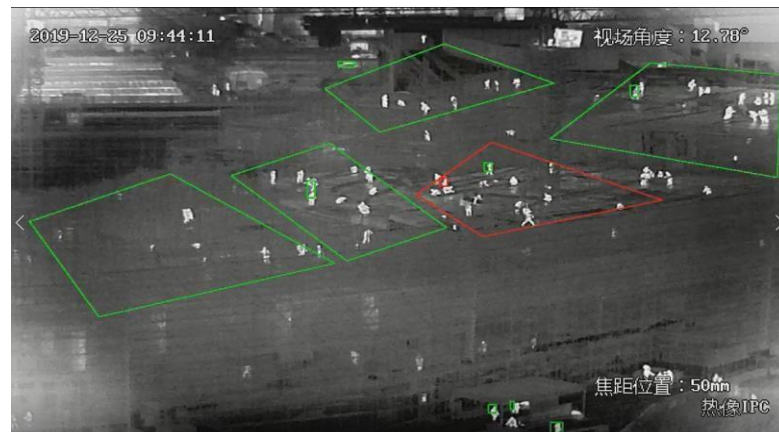
Self-adaptive range measurement



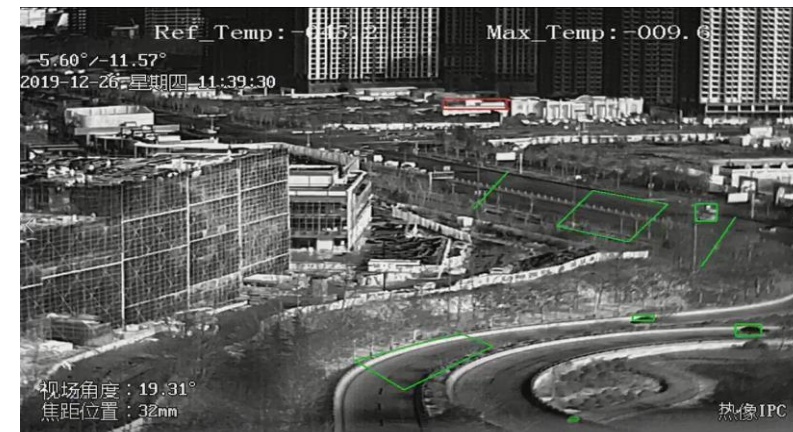
Automatic Tracking



Autofocus and continuous zoom



Intrusion detection



Line crossing detection

Product model & details





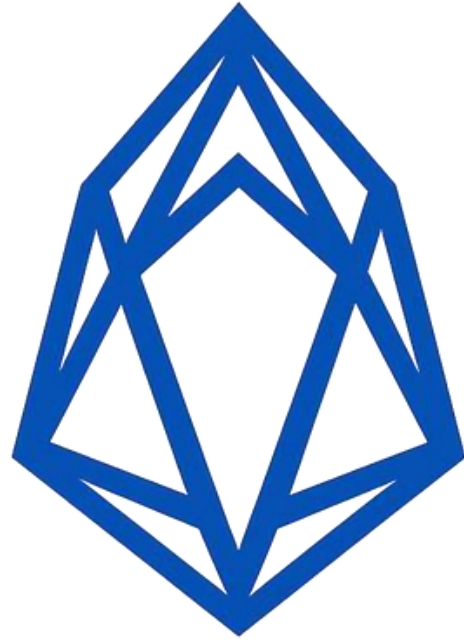
Model	EOS-TVC4307-2132GY	EOS-TVC6307-2132GY
Detection	Vehicle: 6,300 m	
	Pedestrian: 2,500 m	
Identification	Vehicle: 1,800 m	
	Person: 700 m	
Firing point	3,000 m (2 m x 2 m)	
Day vision	2,000 m	
Resolution	384x288	640x512
Focal length	25–75 mm, F1.0	
Zoom	Optical: 3x	Digital: 8x
Optical sensor	8 ~ 320 mm, 40x optical zoom, 1/2.8-inch HD motorised lens, fast autofocus, 2.1 Mpx CMOS camera with integrated dual ICR filter, day/night switching from colour to black and white.	
General features	<ol style="list-style-type: none"> Intelligent analysis: temperature display function, sensitive area alarm, boundary intrusion; PTZ with 15 kg load capacity: unlimited 360° horizontal pan, tilt from -45° to +45°, speed from 0.1° to 30°/s IP network interface supporting ONVIF, RTSP and 28181 protocols 	

Model	EOS-TVC4511-2050GY	EOS-TVC6511-2050GY
Detection	Vehicle: 8,600 m	
	Pedestrian: 3,400 m	
Identification	Vehicle: 2,400 m	
	Person: 900 m	
Firing point	4,000 m (2 m x 2 m)	
Daytime vision	5,000 m	
Resolution	384x288	640x512
Focal length	22.5–105 mm, F1.0	
Zoom	Optical: 5x continuous	Digital: 8x
Optical sensor	HD motorised zoom lens 8 ~ 500 mm, 60x, 1/2.8-inch, fast autofocus, 2.1 Mpx HD, day/night switching (colour/black and white).	
General features	<ol style="list-style-type: none"> Intelligent analysis: temperature display function, hot spot alarm, boundary intrusion; PTZ with 15 kg load capacity: unlimited 360° horizontal pan, tilt from -45° to +45°, speed from 0.1° to 30°/s IP network interface, supporting ONVIF / RTSP / 28181 protocols 	



Model	EOS-TVC4516-2075GY	EOS-TVC6516-2075GY
Detection	Vehicle: 13,000 m	
	Person: 4,800 m	
Identification	Vehicle: 3,400 m	
	People: 1,300 m	
Fire point	10,000 m (at 2 m x 2 m)	
Daytime vision	3,000 m	
Resolution	384 × 288	640 × 512
Focal length	31–155 mm, F1.0	
Zoom	Optical: 5x continuous	Digital: 8x
Optical sensor	12.5–750 mm, 60x optical zoom, 1/1.8-inch lens, fast autofocus, 2 MP, day/night mode with colour-to-black-and-white switching.	
General features	<ol style="list-style-type: none"> Intelligent analysis: temperature display function, hot spot alarm, cross-border intrusion; PTZ with 30 kg load capacity: unlimited 360° horizontal pan, tilt from -45° to +45°, speed from 0.1° to 30°/s IP network interface supporting ONVIF, RTSP and 28181 protocols 	

Model	EOS-TVC12516-2050GY	
Detection	Vehicle: 13,000 m	
	Person: 4,800 m	
Identification	Vehicle: 3,400 m	
	Person: 1,600 m	
Firing point	10,000 m (2 m x 2 m)	
Day vision	3,000 m	
Resolution	1280 × 1024	
Focal length	25–150 mm, F1.0	
Zoom	Optical: 6x continuous	Digital: 8x
Optical sensor	HD motorised zoom lens 8 ~ 500 mm, 60x, 1/2.8-inch, fast autofocus, 2.1 Mpx HD, day/night switching (colour/black and white).	
General features	<ol style="list-style-type: none"> Intelligent analysis: temperature display function, hot spot alarm, boundary intrusion; PTZ with 30 kg load capacity: unlimited 360° horizontal pan, tilt from -45° to +45°, speed from 0.1° to 30°/s IP network interface, supporting ONVIF / RTSP / 28181 protocols 	



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