AGT-GADN1654/1656-7502 Gaias Intelligent

Dual Sensor Thermal Imaging Camera

Product's Overview:

Our **Gaias** series of **AGT-GADN** intelligent dual-band camera is designed and developed based on:

✓ The latest generation of uncooled infrared thermal technology and high-definition visible imaging technology, for the purpose of long range day and night monitoring.

✓ Infrared thermal imaging uses a 17-micron uncooled ultra-fine resolution focal plane imaging detector with high sensitivity of 640*512 or 384*288 resolution, and a miniaturized infrared lens designed by AS+DOE

✓ Advanced digital optical technology. processing algorithms provide for delicate and smooth images;

✓ Full-HD colour & black-white dual-mode low illumination CMOS sensor and long focus compact zoom lens, substantially reduce the size and weight of the visible camera which has brought enormous convenience to the users during installation and application.

✓ With 360 degree of omni-directional Pan-Tilt (PT), to achieve search and observation distance of 13 000m+.

✓ The internal industrial embedded control electronic system gives high stability control of camera during zooming, focusing, mode switching, rotation and Pan-Tilt.

The housing is made of super-strong aluminium alloy to achieve IP66 protection level to guarantee camera operates longer in the harshest outdoor environments.

These camera are also equipped with a super-homogenized Night Vision (NV) IR laser as an illumination source, that (in conjunction with the HD low-illumination camera), can be used for detailed observation of targets discovered by the thermal imager at night to form a tri-sensor camera with infrared thermal image detection for day and night recognition suitable for long-range target monitoring under all-weather conditions. One can also add-on a laser rangefinder, Beidou/GPS, electronic compass and other sensors & accessories to obtain long-range target and scenario ID with precise location information to constitute as a complete multi-functional situational awareness long-range monitoring device.

The dual sensor cameras can also cooperate with their dedicated DF200 key area defence platform software to implement additional intelligent

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functions such as regional intrusion detection, cross-border intrusion detection, multi scenario group cruising detection, 3D selection for zooming/ positioning, automatic target tracking, panoramic mosaic, radar linkage to enable complete automation and an unmanned approach.

This series of camera come with a built-in intelligent hot-point detection algorithm which can automatically detect long-distance flaming, vehicles, personnel and other heat source targets and detect a fire / heat source with warning displays within a radius of 3000m. With the dedicated FR4000 fire warning platform software, it can automatically control scan, automatically process emergency information, auto-record, auto-calculate and calibrate fire location, virtual precinct manage, GIS map information display, meteorological data access, hierarchical manage and dynamically predict / evolve the relevant fire situation. It can also instruct a rescue strategy and other functions. This camera is a suitable device for forest fire prevention, game reserve, mining and for other long-range automatic fire pre-warning monitoring systems.

Product's Highlights:

1. It integrates with infrared thermal image, HD visible imaging, video coding, pan/tilt cover and control electronic system;
2. Visible imaging adopts with full HD color black and white dual mode low illumination CMOS sensor and 30 times compact continuous zoom lens;
3. The latest generation of VOx detectors based on MEMS technology, detection sensitivity (NETD) up to 50mk, higher sensitivity than conventional products, to obtain more delicate picture quality, less affected by fog, rain and snow;
4. Unique AS + DOE advanced optical continuous zoom design and 3CAM high precision optical machine design, stable and smooth zooming, which to conduct to large-scale searching and long-range recognition;
5. Excellent non-uniform image correction technology with good image uniformity and dynamic range;
6. SDE image detail enhancement technology, image smooth and noiseless, a variety of pseudo-color and hot black hot white polarity image mode switching, adaptability, easy to find low-contrast hidden targets;
7. Visible light is based on full HD color/black and white dual mode low illumination CMOS sensor design, 30 times compact continuous zoom lens, small size and light weight;
8. It adopts heavy-duty CNC pan/tilt, 360o continuous rotation observation, no dead angle, stable operation and small image jitters;
9. The full-scale pan/tilt can realize search and observation within 4000m.
10. Support glare protection, anti-sun burn, support multi configuration scene mode, adapt to different occasions;
11. Support intelligent functions such as cross-border/intrusion detection and target tracking to achieve unattended duty;
12. Supports hot-point detection and alert, hot-point detection algorithm is designed based on front-end raw data per frame, with shorter response time, faster target-locking speed, accurate positioning, no delay, and alarm threshold, target size and number can be set remotely.
13. Based on the IP network design, a network cable can realize the interactive transmission of all video, alarm data and positioning data. The system networking and implementation are simple;
14. The whole camera is made of super-strong aluminum alloy casing, IP66 protection, anti-rain, anti-dust, and adapted to harsh environments.
15. Optional: laser illuminator for detailed observation of targets discovered by nighttime thermal imaging, a three-band camera that constitutes infrared thermal image detection, visible light and near-infrared laser day and night recognition;
16. Optional: laser ranging, Beidou/GPS, electronic compass and other sensors to form a multi-person situational awareness remote monitoring device;

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Application Range:

1. Seaport and airport monitoring;
2. River, lake and other water system monitoring;
3. Key material monitoring;
4. Military base security monitoring;
5. Oilfield & oil depot security;
6. Forest, grassland, coal mine, granary and other fire source prevention & monitoring,
7. Ecological and environmental monitoring;
8. Border and coastal defense monitoring;
9. Urban high-altitude and anti-UAV applications;
10. Highways and railways monitoring.

Model	AGT-GADN0734-3002	AGT-GADN0736-3002
Detection	Vehicle: 13000m	
	Human: 4800m	
Fire-Point	6000m (@2 x 2m)	
Identification	Vehicle: 3400m	
	Human: 1300m	
Thermal Camera		
Sensor	5th generation FPA VOx Detector	
Resolution	384 × 288 pixel	640 × 512 pixel
Spectral range	7.5～14μm	
NETD	50mK (@25℃ F1.0)	
Focal length	31 - 155mm	
Field of view(horizontal)	12.4° × 9.3° - 2.5° × 1.8°	20° × 15° - 4°× 3°
Lens Control	1. Zooming: Electrical Zoom. 2. Focusing: Manual/Auto Focus (3A adaptive active focusing algorithm, supports multiple trigger modes with high precision and speed). 3. Optical machine: 3CAM mode and AS+DOE optical structure, high infrared over transmission, zoom process without virtual focus, smaller axis.	
Image Processing	1. Image enhancement: SDE digital image processing. 2. Pseudo colour polarity: 16 pseudo color and B/W, B/W conversion. 3. Image parameter: AGC automatic gain control, brightness and contrast. 4. Digital zoom: 2X, 4X digital amplification. 5. NUC Correction: Auto/Manual correction, background correction.	
Thermal Point	1. Alarm threshold: 255 level can be set.	

Specification:

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Detection & Alert	2. Target size: target range can be set to identify targets of different sizes automatically. 3. Number of alert targets: 1-16 can be set, automatically select the most prominent target display. 4. Alarm mode: Video overlay alarm frame + switch volume (or data return) multiple alarm mode, intuitive and easy to read. 5. Front-end algorithm: Optimized fast front-end processing algorithm, based on the analysis of the original heat map data per frame, alarm response 0.1S, no delay, no information loss. 6. Remote Parameter Adjustment: All alarm parameters and instructions can be set remotely through the video OSD menu, with strong versatility. 7. Secondary development: providing free SDK, easy to use or convenient for secondary development. 8. Dedicated platform: (*Select of dedicated fire prevention pre-warning platform, with automatic scanning, warning, GIS positioning, fire dynamic evolution, fire rescue strategy and other functions, to form a professional system*)

Visible Camera	
Camera	1. Surface: 1/1.8" Star Level CMOS, Integrated ICR Dual Filter D/N Switch; 2. Resolution: 2 million pixels, 1920 x 1080 3. Illumination: 0.001Lux high sensitive colour, 0.0001Lux black and white; 4. Encoding: H.265/H.264 video format, supporting multi-stream; 5. Video Bit Rate: 32Kbps-16Mbps, 60Hz 30 frames/second 6. Support SD card local storage, support regional invasion, cross-border invasion, face detection, audio anomaly

	detection, alarm linkage; 7. Supports AFR fog penetration, electronic anti-shake, strong light suppression, 3D digital noise reduction, anti-infrared overexposure, ABF automatic rear focus adjustment function
Lens	1. Focal Length: 22 - 750mm, 200 mil electrical focus; 2. HD infrared correction: Optical IR correction design, diurnal focus; 3. Auto aperture: support; 4. Night-day wide spectrum: 0.4-0.75um visible broad spectrum window and 0.8-0.95um NIR narrow spectrum window with day-night independent double-pass window to improve the signal-to-noise ratio of imaging light and stray light. 5. Preset position: precision potentiometer, DC5V, zoom focusing feedback.

Laser Illumination (Optional)
1. *Power: 15W.* 2. *Wavelength: 810nm Military graded infrared laser.* 3. *Illumination Angle: 0.7° ~20°, DSS Digital Step Illumination Angle Control Technology.* 4. *Homogenization: GHT-II HD lens group super homogenization patented technology, full focus spot brightness equilibrium > 92%.* 5. *Laser Safety: ZQB safety laser beam processing patented technology, in line with the international IEC60825 safety standard.*

Housing
1. Material：aluminum alloy housing，waterproof; 2. Structure：Integral Dual windows design; 3. 4mm microcrytalline infrared high-effective anti-reflection HLIN optical glass, transmittance >98%; 4. Surface：PTA coating, anti sea water corrosion;

5. Sealing rate：IP66 (IP67 Optional)

6. Temperature control: whole system adopt with thermal balance design + wide temperature electronic and optoelectronic devices, with built-in heating and heat dissipation isothermal control elements, which can work in low and high temperature environment;

7. Interface：aviation waterproof connector

PTZ

1. Duty: 50kg CNC PT

2. Rotation: pan: 0～360°, tilt: -45°～+45°

3. Rotation speed: Pan: 0.01°～30°/S, tilt: 0.01°/S ～15°/S, support lens focusing speed adaptive.

4. 255 presets, support lens zooming and focusing preset.

5. Accuracy: ±0.1°

6. Support 6 cruising line, 1 apple-skin scanning, 1 line-cruising.

7. Keep Watching: Preset/Auto-Patrol/Auto-Scanning.

8. Power Off Memory: Support(Can restore the position before power off, patrol status, line-scanning status)

9. Null-point Correction: support north null-point remote correction function.

10. Power consumption: about 120W

11. Weight: 23kg.

Interface

1. Network interface: 1-channel RJ45.10, 10/100 Base-T adaptive (integrated video output RS422/485 communication control);

2. Network Protocol: TCP/IP, UDP, IPv4/v6; support HTTP, RTP, RTSP, NFS, DHCP, NTP, SMTP, SNMPv1/v2c/v3, UPNP, PPPoE, DNS, FTP; support PSIA, ONVIF2.0, GB28181 and other network protocol.

3. Power supply: AC/DC24V, anti-reverse connection protection;

4. Physical interface: water-proof aviation connector

Enhancement

1. Strong Light Protection: Support anti sunburn function.

2. Temperature correction: no thermal imagery design, thermal imaging clarity is not affected by temperature.

3. Scene mode: support multi-configuration scenarios, adapt to different environment applications.

4. Day and night cruise: D/N group-cruising for different preset groups, day cruise 1-40 preset, night cruise 41-80 preset, according to the light-sensitive state automatically switch to day or night mode, adapt to different space-time scenarios.

5. Lens Servo: Support the functions of lens preset, focal length return and focal length location.

6. Azimuth Information: support angle query/real-time return and positioning, support azimuth video overlay real-time display.

7. Remote Maintenance: Support remote upgrade of embedded programs, convenient for after-sales maintenance.

8. Parameter Settings: OSD Menu Remote Call Operations.

Environment Parameter

1. Operating temperature: -25° ~+60°;

2. Storage temperature: -35°～70°;

3. Humidity: <90%

4. Seismic resistance: 0.2g (in accordance with GB/T15211-2013's 5.4 Harsh grade 2);

5. Impact resistance: 15g (in accordance with GB/T15211-2013's 5.3 Harsh grade 3);

6. Lightning protection: interface circuit with built-in surge protection, 4000V power supply, 2000V signal;

7. Salt spray proof: continuous spray for 96 hours at pH 6.5 to 7.2, no change in surface.

8. Protection Level: IP66

Add-On Function

1. Wiper: (or build-in wiper);

2. Window Cleaner: (small external sprinkle, self-storage water, freezing with no harm, will not affect function of the host);

3. *Extension module: (Beidou/GPS, laser rangefinder and other functions can be selected);*

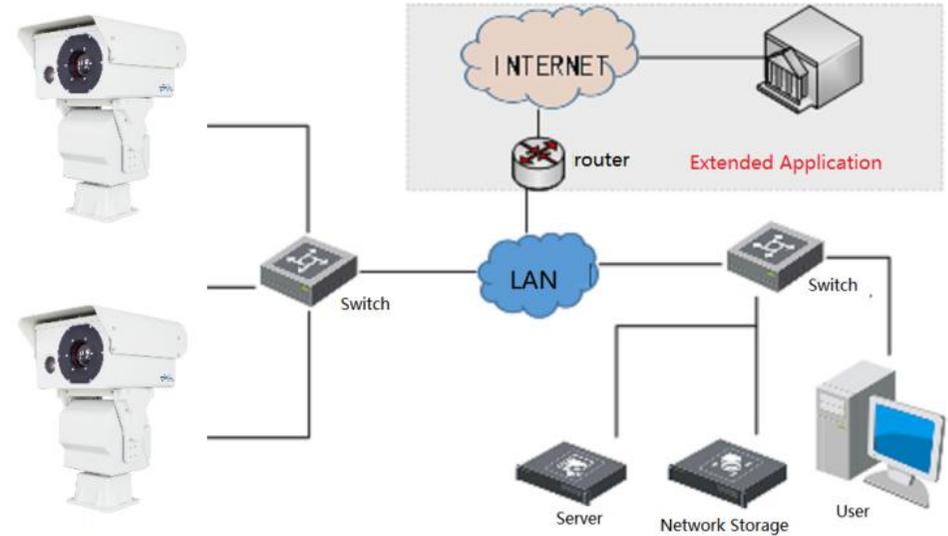4. *Optical network: (built-in fiber module, single mode fiber output, improve anti-jamming).*

Intelligence Functions (Optional Add-On)
1. Auto-tracking system;
2. Anti-drone tracking system;
3. Panoramic stitching;
4. Radar linkage;
5. Hot-point alert;
6. Patrol detection;
7. 3D zooming/positioning selection;
8. Analysis: Invasion, leaving, straggling, retention, lingering, target trajectory.
(The above functions need to be implemented in conjunction with general software and network modules)

Other Specifications	
Total Consumption	180W
Weight	≤45kg (include PTZ)

* The detection distance is related to the object and environmentetc. Please contact with us for further information.

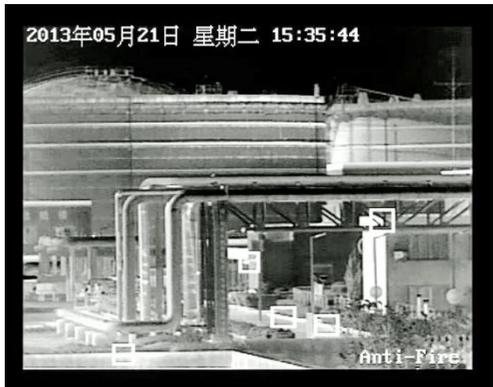
Networked Intelligent Application

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Imaging & Intelligent Functional Effects:

Oil Field Fire Protection

City Surveillance

Oilfield Monitoring

Intelligence Area Defense and Alert System

Airport Protection