

DH-TPC-BF2221-T

Thermal Network Hybrid Bullet Camera



- 256x192 VOx uncooled thermal sensor technology
- Athermalized lens (thermal camera), focus-free
- 1/2.8" 2Megapixel progressive scan CMOS
- Support ROI, motion detection, color palettes
- Support temperature measurement
- Support fire detection & alarm
- Built-in 2/2 alarm in/out
- Micro SD memory, IP67, PoE, ePOE



System Overview

Featuring a dual lens, fixed bullet camera, this series provides an all-in-one solution for capturing video surveillance for indoor and outdoor applications. Together with Thermal and Visible Technology, the camera is the perfect solution for dark, small area monitoring applications. The series combines one thermal camera for monitoring in total darkness and one visible camera with Smart IR for confirming details.

Functions

Uncooled Vox Technology

Dahua thermal cameras use uncooled Vox sensor technology. Because of small size and better performance, it's cost-effective solution for thermal security.

High Sensitivity

High thermal sensitivity(<50mK) makes cameras capture more image details and temperature difference information.

Fire Detection & Alarm

With built-in Fire detect function, the camera has the ability to detect fire in a long distance. because thermal camera is sensitive to temperature, so the accuracy of fire detection will be higher than visible camera.

Temperature Measurement

Dahua thermal cameras (-T models) provide remote temperature monitoring functionality with the ability to set temperature threshold alarms. Object temperatures can be monitored in daytime or at night, making them ideal for usage in power plant or oil extraction applications where overheating can be dangerous. When the temperature exceeds the set threshold, an alarm is triggered. The temperature range is between -20 °C to 550 °C (-4°F to 1022 °F).

Intelligent Video System (IVS)

With built-in intelligent video analytics, the camera has the ability to detect and analyze moving objects for improved video surveillance. The camera provides optional standard intelligence at the edge allowing detection of multiple object behaviors such as abandoned or missing objects. IVS also supports Tripwire analytics, allowing the camera to detect when a pre-determined line has been crossed.

Smoking Detection

Smoking detection is a built-in video analytics algorithm that combines with thermal imaging and visible light technology, based on Dahua Deep-learning AI algorithm to automatically detect if there is someone smoking in a detection area and to trigger an alarm.

Value: Dahua thermal camera can provide a real-time monitoring, in the use of AI technology, to automatically detect people's smoking behavior and provide intelligent voice and light warning (Loudspeaker and white light, etc.) in an effort to dissuade or correct, and avoid potential risk and loss

Environmental

With a temperature range of -30 °C to +60 °C (-22 °F to +140 °F), the camera is designed for extreme temperature environments. Subjected and certified to rigorous dust and water immersion tests, the IP67 rating makes it suitable for demanding outdoor applications.

Protection

Supporting ±15% input voltage tolerance, this camera suits even the most unstable conditions for outdoor applications. Its 6KV lightning rating provides protection against the camera and its structure from the effects of lightning.

| Technical Specification | | | | | |
|--------------------------------------|---|--------------|-------------|------------|-------------|
| Structure | Multi-sensor bullet camera | | | | |
| Thermal | | | | | |
| Detector Type | Vanadium oxide uncooled focal plane detector | | | | |
| Effective Pixels | 256x192 | | | | |
| Pixel Pitch | 12µm | | | | |
| Spectral Range | 8µm–14µm | | | | |
| Thermal Sensitivity (NETD) | ≤50mK | | | | |
| Focal Length | 3.5mm; 7mm | | | | |
| Field of View | 3.5mm: horizontal: 50.6° ; vertical: 37.8° 7mm: horizontal: 24° ; vertical: 18° | | | | |
| Focus Mode | 3.5mm/7mm: focus free and athermalized | | | | |
| Aperture | F1.0 | | | | |
| Detection Distance | 3.5mm: vehicle: 389m (1276ft); human: 146m (479ft) 7mm: vehicle: 778m (2552ft); human: 292m (958ft) | | | | |
| Recognition Distance | 3.5mm: vehicle: 97m (318ft); human: 38m (125ft) 7mm: vehicle: 194m (636ft); human: 75m (246ft) | | | | |
| Identification Distance | 3.5mm: vehicle: 49m (161ft); human: 19m (62ft) 7mm: vehicle: 97m (318ft); human: 38m (125ft) | | | | |
| Digital Detail Enhancement (DDE) | Yes | | | | |
| AGC | Auto; manual | | | | |
| Noise Reduction | 2D NR; 3D NR | | | | |
| Color Palettes | 18 color modes selectable such as Whitehot/Blackhot/Ironrow/Icefire. | | | | |
| Temperature Measurement Range | Low temperature mode: -20°C (-4°F) to +150°C (302°F) High temperature mode: 0°C (34°F) to +550°C (1022°F) | | | | |
| Temperature Accuracy | Max (±5°C, ±5%) Operating temperature: -10°C (14°F) to +50°C (122°F) | | | | |
| Temperature Mode | Spot: 12 Line: 12 Area: 12 Support 12 rules simultaneously | | | | |
| Visible | | | | | |
| Image Sensor | 1/2.8 inch CMOS | | | | |
| Effective Pixels | 1920x1080 | | | | |
| Max. Resolution | 2MP | | | | |
| Horizontal Definition | ≥1100TVL | | | | |
| Min. Illumination | Color: 0.005Lux Black & white: 0.0005Lux IR light (on): 0Lux | | | | |
| AGC | Auto; manual | | | | |
| Noise Reduction | 2D NR; 3D NR | | | | |
| S/N Ratio | >56dB | | | | |
| White Balance | Auto/indoor/outdoor/tracking/manual/sodium lamp/natural/street light | | | | |
| Electronic Defog | Yes | | | | |
| Electronic Image Stabilization (EIS) | Yes | | | | |
| Electronic Shutter Speed | 1/3s–1/100000s (auto or manual) | | | | |
| BLC | Yes | | | | |
| WDR | DWDR | | | | |
| HLC | Yes | | | | |
| Day/Night | Auto (ICR); color/B/W | | | | |
| Focus Mode | Manual | | | | |
| Focal Length | 4mm; 8mm | | | | |
| Field of View | 4mm: horizontal: 84°; vertical: 45°; diagonal: 99° 8mm: horizontal: 40°; vertical: 22°; diagonal: 46° | | | | |
| DORI Distance | Lens | Detect | Observe | Recognize | Identify |
| | 4mm | 55m (180ft) | 22m (72ft) | 11m (36ft) | 5.5m (18ft) |
| | 8mm | 110m (361ft) | 44m (144ft) | 22m (72ft) | 11m (36ft) |
| Close Focus Distance | 0.2m | | | | |
| Aperture | 4mm: F2.0 8mm: F1.9 | | | | |
| IR On/Off control | Auto; manual | | | | |
| IR Distance | 4mm: 35m (115ft) 8mm: 50m (164ft) | | | | |
| Audio and Video | | | | | |
| Video Compression | H.265; H.264M; H.264H; H.264B; MJPEG | | | | |
| Resolution | Thermal: (1280×960) (default value)/XVGA (1024×768)/VGA (640×480)/(256×192) Visual: 1080P (1920×1080) (default value)/720P (1280×720)/D1 (704×576/704×480)/CIF (352×288/352×240) | | | | |
| Video Frame Rate | Thermal: 50Hz: Main stream (1280×960@25fps/1024×768@25fps/640×480@25fps/256×192@25fps), sub stream (640×480@25fps/256×192@25fps) 60Hz: Main stream (1280×960@30fps/1024×768@30fps/640×480@25fps/256×192@25fps), sub stream (640×480@30fps/256×192@30fps) Visual: 50Hz: Main stream (1920×1080@25fps/1280×720@25fps/704×576@25fps), sub stream (704×576@25fps/352×288@25fps) 60Hz: Main stream (1920×1080@30fps/1280×720@30fps/704×480@30fps), sub stream (704×480@30fps/352×240@30fps) | | | | |
| Audio Compression | G.711a; G.711mu; AAC; PCM | | | | |
| Image Encoding Format | JPEG | | | | |
| General Function | | | | | |
| Two-way Talk | Yes | | | | |

| | |
|--------------------------|---|
| Network Protocol | HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP |
| Region of Interest (ROI) | Yes |
| Edge Storage | FTP; Micro SD card (256G, hot plug) |
| Browser | IE: IE8 and the later, and explorer with IE core Google: 42 and the earlier Firefox: 42 and the earlier Safari: 10 and the earlier |
| User/Host | 20 channels at most (the total bandwidth 64M) |
| Security | Authorized username and password; attached MAC address; encrypted HTTPS; IEEE 802.1x; controlled network access |
| User Management | Support 20 users at most and users are classified as two groups--administrator group and user group. |
| Malfunction Detection | Network disconnection; IP addresses conflict; SD card error (status or storage space) |

Smart Event

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|-----------------------|--------------------|
| General IVS Analytics | Tripwire/intrusion |
|-----------------------|--------------------|

Professional and Intelligent

| | |
|---------------------|---|
| Fire Detection | Yes |
| Cold/Hot Spot Trace | Auto tracking of the hottest spot and the coldest spot in the thermal image |
| IVS Analytics | Tripwire/intrusion |
| Network | 1 10M/100M Ethernet port (RJ-45) |
| Alarm Input | 2 channels |
| Alarm Output | 2 channels |
| Audio Input | 1 channel |
| Audio Output | 1 channel |
| RS-485 | 1 channel |

Power

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|-------------------|--|
| Power Supply | 12V±20% DC, POE (802.3af), ePOE |
| Power Consumption | <5.0W (12V DC) (basic power consumption) <12W (12V DC, without power adaptor) (maximum power consumption) |

Environment

| | |
|-----------------------|---|
| Operating Temperature | -30°C (-22°F) to +60°C (140°F) |
| Operating Humidity | ≤95% |
| Self-Adaptive | Auto heating to protect the chip under the cold environment |

Physical Characteristics

| | |
|----------------------|--|
| Protection Grade | IP67, anti-surge 6KV, anti-elctrostatic 8KV (touched by objects), anti-elctrostatic 15KV (air) |
| Dimensions | 279.9mm (11.02")×103.8mm (4.09")×95.8mm (3.77") (length×width×height) |
| Packaging Dimensions | Camera with package: 365mm (14.4")×175mm (6.9")×176mm (6.9") (length×width×height) Deliveray box: 902mm (35.5")×380mm (15")×380mm (15") (width×length×height) |

| | |
|-------------------|------------------------------------|
| Net Weight | ≤1.4kg (3lb) |
| Gross Weight | ≤1.9kg (4.2lb) |
| Installation Mode | Wall mount/pole mount/corner mount |
| Lens | Contained |
| Bracket | Contained |

Certification

| | |
|----------------|---|
| Certifications | CE (EN 60950:2000); FCC (FCC Part 15 SubpartB) |
|----------------|---|

Ordering Information

| Type | Part Number | Description |
|-----------------|----------------------|--|
| DH-TPC-BF2221-T | DH-TPC-BF2221P-TB3F4 | Thermal: 256x192 3.5mm lens Visible: 2MP 4mm lens |
| | DH-TPC-BF2221N-TB3F4 | |
| | DH-TPC-BF2221P-TB7F8 | Thermal: 256x192 7mm lens Visible: 2MP 8mm lens |
| | DH-TPC-BF2221N-TB7F8 | |
| Accessories | PFA121 | Water-proof Junction Box (wall mount) |
| | PFA121+PFA152-E | Water-proof Junction Box+Pole Mount Bracket (pole mount) |
| | PFA121+PFA151 | Water-proof Junction Box+Corner Mount Bracket (corner mount) |

Accessories

Optional:



PFA121
Water-proof Junction Box (wall mount)



PFA121+PFA152-E
Water-proof Junction Box+Pole Mount
Bracket
(pole mount)



PFA121+PFA151
Water-proof Junction Box+Corner Mount
Bracket (corner mount)

| Junction Mount | Pole Mount | Corner Mount |
|----------------|-----------------|---------------|
| PFA121 | PFA121+PFA152-E | PFA121+PFA151 |
| | | |

Dimensions (mm/inch)

