

# DH-TPC-BF2221

## Thermal Network Value Hybrid Bullet Camera



- 256x192 VOx uncooled thermal sensor technology
- Athermalized Lens (thermal), Focus-free
- 1/2.8" 2Megapixel progressive scan CMOS
- Support ROI, motion detection, color palettes
- Smart alarm linkage with white light & loudspeaker
- 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-light 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-light camera.

#### Smart Alarm Linkage

When an abnormal event is detected by thermal or visible-light channel, the white light and loudspeaker will turn on to make a visual or voice prompt, then record and snapshot. The white light and the content of loudspeaker is configurable.

### 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.

### Environmental

With a temperature range of -30 °C to +60 °C, 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  $\pm 15\%$  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

#### Thermal Camera

|                            |  |
|----------------------------|--|
| Image Sensor               | Uncooled VOx Microbolometer  |
| Effective Pixels           | 256(H) x 192(V)  |
| Pixel Size                 | 12um   |
| Thermal Sensitivity (NETD) | ≤50mK  |
| Spectral Range             | 8 ~ 14um   |
| Image Setting              | Brightness/Sharpness/ROI/AGC/FFC/3D DNR  |
| Color Palettes             | 18(Whitehot/Blackhot/Ironrow/Icefire/Fusion/Rainbow/Globow/Iconbow1/Iconbow2 .etc) |

#### Thermal Lens

|   |                             |                              |
|---|-----------------------------|------------------------------|
| Lens Type   | Fixed/F1.0                  |                              |
| Focus Control                                       | Athermalized, Focus-free    |                              |
| Focal Length  | 3.5mm                       | 7mm                          |
| Angle of View                                       | H: 50.6°, V: 37.8°          | H: 24°, V: 18°               |
| Effective Distance <sup>①</sup><br>Human(1.8m*0.5m) | D: 146m<br>R: 38m<br>I: 19m | D: 292m<br>R: 75m<br>I: 38m  |
| Effective Distance<br>Vehicle(4.0m*1.4m)            | D: 389m<br>R: 97m<br>I: 49m | D: 778m<br>R: 194m<br>I: 97m |

#### Visible Camera

|                          |   |     |
|--------------------------|---|-----|
| Image Sensor             | 1/2.8" 2M CMOS                                |     |
| Effective Pixels         | 1920(H)x1080(V)                               |     |
| Electronic Shutter Speed | 1/1 ~ 1/30,000s                               |     |
| Min. Illumination        | Color: 0.005Lux; B/W: 0.0005Lux; 0Lux (IR on) |     |
| IR Distance              | 35m   | 50m |
| IR On/Off Control        | Auto/Manual                                   |     |
| IR LEDs                  | 1   |     |

#### Visible Lens

|                      |                |                |
|----------------------|----------------|----------------|
| Focal Length         | 4mm            | 8mm            |
| Max Aperture         | F2.0           | F1.9           |
| Angle of View        | H: 80°, V: 45° | H: 40°, V: 22° |
| Close Focus Distance | 0.2m           |                |

#### Video

|                    |   |
|--------------------|---|
| Compression        | H.265/H.264M/H.264H/H.264B/MJPEG  |
| Frame Rate         | Main Stream:<br>50Hz:<br>Thermal: 1280*960/1024*768/640*480/256*192@25fps<br>Visible: 1920*1080/1280*720/704*576@25fps<br>60Hz:<br>Thermal: 1280*960/1024*768/640*480/256*192@30fps<br>Visible: 1920*1080/1280*720/704*480@30fps<br><br>Sub Stream:<br>50Hz:<br>Thermal: 640*480/256*192@25fps<br>Visible: 704*576/352*288@25fps<br>60Hz:<br>Thermal: 640*480/256*192@30fps<br>Visible: 704*480/352*240@30fps |
| Bit Rate Control   | CBR/VBR   |
| Bit Rate           | H.264: 640 ~ 8192Kbps   |
| Day/Night          | Auto(ICR)/Color/B/W   |
| BLC Mode           | BLC/HLC/DWDR  |
| White Balance      | Auto/Indoor/ Outdoor/Manual etc.  |
| Noise Reduction    | 2D DNR/3D DNR   |
| Motion Detetion    | Off/On (4 zone, Rectangle)  |
| Region of Interest | Off/On (4 zone)   |
| Defog              | Off/On  |
| Flip               | 180°  |
| Mirror             | Off/On  |
| Privacy Masking    | Off/On (4 area, Rectangle)  |

#### Audio

|                                |   |
|--------------------------------|---|
| Compression                    | G.711a/G.711Mu/AAC/PCM  |
| Intelligence                   |   |
| IVS                            | Tripwire, Intrusion   |
| Advanced Intelligent Functions | Fire detection & alarm, Cold/Hot spot trace, Human/Vehicle classificaton, Smoking detection |

#### Network

|                  |  |
|------------------|--|
| Ethernet         | RJ-45 (10/100Base-T)   |
| Protocol         | HTTP, TCP, ARP, RTSP, RTP, UDP, RTCP, SMTP, FTP, DHCP, DNS, DDNS, PPPOE, IPv4/v6, SNMP, QoS, UPnP, NTP |
| Interoperability | ONVIF Profile S & G, API   |
| Streaming Method | Unicast/Multicast  |
| Max. User Access | 20 Users   |

|                     |  |
|---------------------|--|
| Edge Storage        | micro SD (256G)<br>Memory status display (Normal/Error/Active/Formatting/Lock)<br>NAS (Network Attached Storage)<br>Local PC for instant recording |
| Web Viewer          | >IE8, <Chrome42, <Firefox42, <Safari 10  |
| Management Software | Smart PSS, DSS   |
| Smart Phone         | Android, IOS   |

**Certifications**

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

**Interface**

|                 |             |
|-----------------|-------------|
| Video Interface | 1 port(BNC) |
| Audio Interface | In/Out 1/1  |
| RS485           | Support     |
| Alarm           | 2/2 In/Out  |

**Electrical**

|                   |                     |
|-------------------|---------------------|
| Power Supply      | DC 12V±15%/PoE/ePoE |
| Power Consumption | Max 12W             |

**Environmental**

|                     |                                |
|---------------------|--------------------------------|
| Operating Condition | -30°C ~ +60°C (-22°F ~ +140°F) |
| Storage Conditions  | -40°C ~ +70°C (-40°F ~ +158°F) |
| Relative Humidity   | ≤ 95%                          |
| Ingress Protection  | IP67                           |

**Construction**

|              |   |
|--------------|---|
| Casing       | Metal   |
| Dimensions   | 279.9mm × 103.8mm × 95.8mm (11.02" × 4.09" × 3.77") |
| Net Weight   | 1.4Kg (3.09 lb)                                     |
| Cross Weight | 1.9Kg (4.19 lb)                                     |

**Note:**

- ① Effective distance values shown are nominal values and should be used as estimates only. Exact value calculations depend on a wide variety of conditions.
- ② D: Detection Distance
- ③ R: Recognition Distance
- ④ I: Identification Distance

**Ordering Information**

| Type          | Part Number         | Description                 |
|---------------|---------------------|-----------------------------|
| DH-TPC-BF2221 | DH-TPC-BF2221P-B3F4 | Thermal: 256x192 3.5mm lens |
|               | DH-TPC-BF2221N-B3F4 | Visible: 2MP 4mm lens       |
|               | DH-TPC-BF2221P-B7F8 | Thermal: 256x192 7mm lens   |
|               | DH-TPC-BF2221N-B7F8 | Visible: 2MP 8mm lens       |

**Accessories**

**Optional:**



**PFA121**



**PFA152-E**

**Mounting Type**

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

**Dimensions (mm)**

