

# Thermal Network Bullet Camera

400 x 300 VOx Uncooled Thermal Sensor with Thermometry



- 400 x 300 VOx Uncooled Thermal Sensor Technology
- Athermalized Lens, Focus-free
- 13 mm or 25 mm Fixed Thermal Lens Options
- < 40 mK Thermal Sensitivity
- Remote Temperature Measurement
- Intelligent Video System with Fire Detection and Alarm Functionality
- Two Alarm Inputs, One Alarm Output
- Support for PoE and Micro SD Memory Storage
- Designed for Extreme Temperature Environments
- IP67 Ingress Protection
- Five-year Warranty\*



## Thermal Color Palettes

Dahua thermal cameras provide a choice of color palettes onboard the camera that help to distinguish thermal variations and patterns in an image. The color tones correspond to the apparent surface temperatures of the target.

## Fire Detection and Alarm

With built-in fire detection functionality, the camera can detect a rapid rise in temperature over a short time and issue an alarm for a potential fire event even at long distances. Because thermal cameras are sensitive to temperature, they provide higher fire detection accuracy than standard cameras, making them particularly fit for applications such as forest fire prevention.

## Intelligent Video System (IVS)

IVS is a built-in video analytic algorithm that delivers intelligent functions to monitor a scene for Tripwire violations, intrusion detection, and abandoned or missing objects. A camera with IVS quickly and accurately responds to monitoring events in a specific area.

## Cybersecurity

Dahua network cameras are equipped with a series of key cybersecurity technologies including: security authentication and authorization, access control, trusted protection, encrypted transmission, and encrypted storage. These technologies improve the camera's ability to prevent malicious access and to protect data.

## Environmental

With a temperature range of  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ ), the camera is designed for extreme temperature environments. The camera complies with the IP67 rating makes it suitable for demanding outdoor applications.

Supporting dual voltage input (12 VDC or 24 VAC) and a  $\pm 15\%$  input voltage tolerance, this camera suits even the most unstable power supply conditions. Its 6KV lightning rating provides protection against the camera and its structure from the effects of lightning.

## System Overview

The Dahua Thermal Network Bullet camera combines an uncooled VOx Microbolometer sensor with an athermalized lens to produce long-range thermal images. The camera produces clear images in total darkness, and delivers usable images in fog, rain, and snow, offering truly covert surveillance without the need for external light. The camera offers a Fire Detection and Alarm feature that identifies an abnormal rise in temperature and remote temperature monitoring to detect temperatures above a set threshold. Dahua thermal cameras are ideal for forestry, border security, and industrial applications.

## Functions

### Uncooled Vanadium Oxide (VOx) Technology

Dahua thermal cameras use an uncooled Vanadium Oxide (VOx) sensor that delivers higher thermal sensitivity in a more compact and cost-effective package. Vanadium Oxide cameras are also more reliable, as compared to other thermal imaging technologies, due to less moving parts.

### Athermalized Lens

The athermalized lens used in Dahua thermal cameras maintains the focus position passively and without power over a wide temperature range.

### High Thermal Sensitivity

The VOx detector offers high thermal sensitivity ( $< 40\text{ mK}$ ) that allows Dahua thermal cameras to distinguish objects in a scene with minimal temperature differences. The camera captures detailed images where thermal contrast between object and background is minimal.

### Remote Temperature Measurement

The thermal camera provides remote temperature measurement and monitoring to send an alert when a temperature exceeds a set threshold. The camera can monitor temperatures at spot, along a line, or within a defined area and has a range of  $-40^{\circ}\text{C}$  to  $550^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $1022^{\circ}\text{F}$ ). Temperature measurement is ideal for use in power or chemical plants where overheating could lead to a dangerous environment.

## Technical Specification

### Thermal Camera

Image Sensor	Uncooled VOx Microbolometer
Effective Pixels	400 (H) x 300 (V)
Pixel Size	17 μm
Thermal Sensitivity (NETD)	< 40 mK at f/1.0
Spectral Range	7 μm to 14 μm
Image Setting	Brightness, Sharpness, ROI, AGC, FFC, 3D DNR
Color Palettes	14, including: Whitehot, Blackhot, Ironrow, Icefire, Fusion, Rainbow, Globow, Iconbow1, Iconbow2

### Thermal Lens

Lens Type		Fixed	
Focus Control		Athermalized, Focus-free	
Focal Length		13 mm	25 mm
Angle of View		H: 29.7° V: 22.3°	H: 15.5° V: 11.6°
Effective Distance, human (1.80 m x 0.50 m) <sup>1</sup>	Detection	450 m (1476 ft)	1000 m (3281 ft)
	Recognition	110 m (361 ft)	250 m (820 ft)
	Identification	60 m (197 ft)	125 m (410 ft)
Effective Distance, vehicle (2.30 m x 2.30 m) <sup>1</sup>	Detection	1300 m (4265 ft)	3000 m (9843 ft)
	Recognition	350 m (1148 ft)	720 m (2362 ft)
	Identification	180 m (591 ft)	360 m (1181 ft)

### Video

Compression	H.264, MJPEG
Frame Rate	Main Stream: 1280 x 1024 (default) or 720p at 30 fps Sub Stream: 640 x 512 (default) or 320 x 256 at 30 fps
Bit Rate Control	CBR, VBR
Bit Rate	H.264: 640 to 8192 Kbps
Motion Detection	Off, On (4 zones, Rectangle)
Region of Interest	Off, On (4 zones)
Digital Zoom	19x
Flip	180°
Mirror	Off, On
Privacy Masking	Off, On (4 areas, Rectangle)

### Temperature Measurement

Range	Low Gain	−40° C to 550° C (−40° F to 1022° F)
	High Gain	−40° C to 150° C (−40° F to 302° F)
Accuracy <sup>2</sup>	Low Gain	±2° C
	High Gain	±2%
Mode	Spot, Line, Area	
Rules	Camera supports 12 rules for each mode, with any 12 modes active at one time	

### Audio

Compression	G.711a, G.711Mu
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### Network

Ethernet	RJ-45 (10/100 Base-T)
Protocol	IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE, ONVIF
Interoperability	ONVIF Profile S & G, PSIA, CGI
Streaming Method	Unicast, Multicast
Maximum User Access	10 Users, 20 Users
Edge Storage	Network Attached Storage (NAS) Local PC for Instant Recording Micro SD Card Slot, maximum 128 GB Memory Status Display: Normal, Error, Active, Formatting, Lock
Web Viewer	IE 11, Chrome, Firefox
Management Software	SmartPSS, DSS
Mobile Operating System	Android, IOS
Cybersecurity	Video Encryption, Firmware Encryption, Configuration Encryption, Digest, WSSE, Account Lockout, Security Logs, IP/MAC Filtering, Generating and Importing X.509 Certification, Syslog, HTTPS, 802.1x, Trusted Boot, Trusted Execution, Trusted Upgrade

### Certifications

Electromagnetic Compatibility (EMC)	FCC CFR 47 Part 15 Subpart B
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### Interface

Video	1.0 Vp-p, 75 Ω (use for camera installation)
Audio	Input: One (1) Channel, RCA Output: One (1) Channel, RCA
RS485	One (1) Port
Alarm	Input: Two (2) Channels Output: One (1) Channel

### Electrical

Power Supply	24 VAC, 1 A; 12 VDC, 1 A; or PoE
Power Consumption	Maximum 10 W

### Environmental

Operating Condition	−40° C to +60° C (−40° F to +140° F) Less than 95% RH Initiate start up above −40° C (−40° F)
Storage Conditions	−40° C to +70° C (−40° F to +158° F) Less than 95% RH
Ingress Protection	IP67

### Construction

Casing	Metal
Dimensions	291.0 mm x 103.80 mm x 97.20 mm (11.46 in. x 4.09 in. x 3.83 in.)
Net Weight	1.37 kg (3.31 lb)
Gross Weight	1.70 kg (4.19 lb)

1. The Detection, Recognition, and Identification values shown are nominal values and should be used as estimates only. Exact value calculations depend on a wide variety of conditions.
2. To ensure optimal accuracy for temperature measurement, ensure the camera operates in an ambient temperature between −20° C to +50° C (−4° F to +122° F°).

## Intelligence

IVS triggers an alarm and takes a defined action for the following events:

## Standard Features

- Tampering with the camera.
- Camera loses or changes focus drastically.
- Error writing to an onboard Micro SD card.
- Error sending or receiving data over the network.
- Unauthorized access to the camera.

## Premium Features

Tripwire	A target crosses a user-defined line.
Intrusion	A target enters or exits a defined perimeter.
Abandoned/Missing Object	A target leaves an object in designated area, or a target removes an object from the same designated area.
Advanced Features	
Fire Detection	Detects a rapid rise in temperature over a short time and issues an alarm for a potential fire.

## Ordering Information

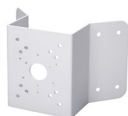
Type	Part Number	Description
Thermal Network Camera	DH-TPC-BF5400N-TC13	Thermal Network Bullet Camera, 400 x 300, 13 mm lens, Thermometry, IVS
	DH-TPC-BF5400N-TC25	Thermal Network Bullet Camera, 400 x 300, 25 mm lens, Thermometry, IVS
Accessories, optional	PFA121	Junction Box
	PFA151	Corner Mount
	PFA152-E	Pole Mount
	DH-PFM321D-US	12 VDC, 1 A Power Adapter

## Accessories

Optional:



PFA121  
Junction Box



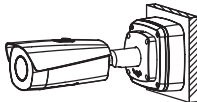
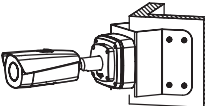
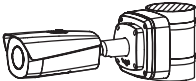
PFA151  
Corner Mount



PFA152-E  
Pole Mount



DH-PFM321D-US  
12 VDC, 1 A  
Power Adapter

Wall Mount	Corner Mount	Pole Mount
PFA121	PFA121+PFA151	PFA121+PFA150
		

## Dimensions(mm/in.)

