Dahua
TECHNOLOGY

DHI-TPC-BF4441
Thermal Network Hybrid Bullet Camera

· Vanadium oxide uncooled focal plane detector.

· 1/2.7" 4Megapixel progressive scan CMOS.

· AI functions: heat detection, tripwire, intrusion, and human/vehicle classification.

· Wide input voltage 12 VDC ± 20%, and PoE&ePoE.

· IP67 rated.

· Supports up to 18 color palettes.

Featuring thermal and visible channels, BF4X41 series thermal network hybrid bullet camera offers various AI functions such as tripwire, intrusion, and heat detection. It can be used in medium-distance monitoring scenes such as perimeter protection and heat monitoring, and can link various alarm actions such as sound and light alarm, email and external alarm.

Technical Specification

Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Effective Pixels	400 (H) × 300 (V)
Pixel Pitch	17 μm
Spectral Range	8 μm–14 μm
Sensitivity (NETD)	≤40 mK (@f/1.0)
Focal Length	13 mm; 19 mm; 25 mm
Field of View	13 mm: H: 30.4°; V: 22.5° 19 mm: H: 20.3°; V: 15.3° 25 mm: H: 15.5°; V: 11.6°
Thermal Focus Control	Fixed-focal
Close Focus Distance	13 mm: 2.5 m (8.20 ft) 19 mm: 5.5 m (18.04 ft) 25 mm: 9 m (29.53 ft)
Detection Distance[1]	13 mm: Vehicle: 1,176 m (3,859.81 ft); Human: 382 m (1,253.28 ft) 19 mm: Vehicle: 1,719 m (5,641.26 ft); Human: 559 m (1,833.41 ft) 25 mm: Vehicle: 2,262 m (7,422.71 ft); Human: 735 m (2,411.42 ft)
Recognition Distance[2]	13 mm: Vehicle: 289 m (946.75 ft); Human: 98 m (321.52 ft) 19 mm: Vehicle: 422 m (1,383.71 ft); Human: 144 m (471.45 ft) 25 mm: Vehicle: 555 m (1,820.67 ft); Human: 189 m (620.33 ft)

Identification Distance[3]	13 mm: Vehicle: 146 m (477.88 ft); Human: 49 m (161.28 ft) 19 mm: Vehicle: 213 m (698.44 ft); Human: 72 m (236.22 ft) 25 mm: Vehicle: 280 m (919.00 ft); Human: 95 m (311.68 ft)

Note:
[1] Detection Distance: Detects objects, but cannot recognize their characteristics (objects must cover more than 3.6 pixels of the image).
[2] Recognition Distance: Classifies objects into general categories, such as human, vehicle (the object must cover more than 14 pixels of the image).
[3] Identification Distance: Classifies objects into specific categories based on their characteristics, such as engineering truck, car (the object must cover more than 28 pixels of the image).

Digital Detail Enhancement (DDE)	Yes
Digital Zoom	19 levels
Thermal AGC	Auto/Manual
Thermal Noise Reduction	2D NR/3D NR
Image Flip	180°; Mirror
Color Palettes	18 (white hot/black hot/fusion/rainbow/golden autumn/midday/iron red/amber/jade/sunset/icefire/painting/pomegranate/emerald /spring/summer/autumn/winter)

Visible

Image Sensor	1/2.7" CMOS
Max. Resolution	2688 (H) × 1520 (V)
Pixel	4 MP
Horizontal Definition	≥1100 TVL

Min. Illumination	Color: 0.01 lux Black & white: 0.001 lux 0 lux (white light on)
Visible AGC	Auto/Manual
Visible Noise Reduction	2D NR/3D NR
S/N Ratio	>55 dB
White Balance	Auto; manual; indoor; outdoor; tracking; sodium lamp; street lamp; natural
Defog	Electronic defog
Electronic Shutter Speed	1 s–1/30,000 s (auto/manual)
BLC	Yes
WDR	Yes
HLC	Yes
Day/Night	Auto (ICR); Color; B/W
Iris Control	Fixed
Image Flip	180°; Mirror
Exposure Compensation	Yes
Visible Focus Control	Fixed-focal
Focal Length	6 mm; 8 mm
Field of View	6 mm: H: 56.1°; V: 30.1° 8 mm: H: 41.3°; V: 23.1°
Close Focus Distance	6 mm: 4.5 m (14.76 ft) 8 mm: 8 m (26.25 ft)
Aperture	F1.6
Illuminator On/Off Control	Auto; manual
Illumination Distance	30 m (98.43 ft)

Audio and Video

Video Compression	H.265; H.264H; H.264
Resolution	Thermal: Main stream: 1280 × 1024; 1280 × 960; 1280 × 720; 400 × 300; 1280 × 960 (default) Sub stream: 640 × 512; 640 × 480; 400 × 300; 400 × 300 (default) Visible: Main stream: 2688 × 1520; 2560 × 1440; 1920 × 1080; 1280 × 720); 704 × 576; 2560 × 1440 (default) Sub stream: 704 × 576; 352 × 288; 704 × 576 (default)
Video Frame Rate	Thermal (50 Hz): Main stream: 1 fps–25 fps, 25 fps by default Sub stream: 1 fps–25 fps, 15 fps by default Visible (50 Hz): Main stream: 1 fps–25 fps, 25 fps by default Sub stream: 1 fps–25 fps, 15 fps by default Thermal (60 Hz): Main stream: 1 fps–30 fps, 30 fps by default Sub stream: 1 fps–30 fps, 15 fps by default Visible (60 Hz): Main stream: 1 fps–30 fps, 30 fps by default Sub stream: 1 fps–30 fps, 15 fps by default
Audio Compression	G.711a; G.711 mu
Image Encoding Format	JPEG

Function

Two-way Audio	Yes
Sound and Light Alarm	Local audio and white light alarm prompts
Network Protocol	IPv4/IPv6; HTTP; HTTPS; 802.1x; QoS; FTP; SMTP; UPnP; SNMP; DNS; DDNS; NTP; RTSP; RTP; TCP; UDP; IGMP; ICMP; DHCP; PPPoE
Region of Interest (RoI)	Yes (customizable)
Storage	FTP; Micro SD card (512 GB, hot swapping)
Micro SD Card (Max.)	512 GB
Interoperability	ONVIF; CGI; DaHua SDK
Browser	IE: IE9 and later (Edge is not supported) Chrome: 42 and earlier Firefox: 42 and earlier
User/Host	Up to 20 (total bandwidth: 64 MB)
Security	Authorized username and password; attached MAC address; encrypted HTTPS; IEEE 802.1x; controlled network access
User Management	Up to 20 users; supports multi-level user permissions (2 levels): management group and user group
Malfunction Detection	Network disconnection detection; IP conflict detection; memory card state detection; memory space detection
Fusion Mode	Yes. Off by default
PIP	Yes

Intelligence

Heat Detection	Yes
Cold/Hot Spot Trace	Yes
Perimeter Protection	Yes. Supports tripwire and intrusion.
Target Distinction	Human/Vehicle Classification
Smoke Detection	Yes

Port

Analog Output	1 × CVBS output; BNC port
Network Port	1 × RJ-45 (10/100 Base-T)
Alarm Input	2
Alarm Output	2
Audio Input	1
Audio Output	1
RS-485	1

Power

Power Supply	12 VDC ± 20%, PoE (802.3af), ePoE
Power Consumption	Basic: 4.68 W (12 VDC); 5.4 W (PoE) Max.: 11.88 W (12 VDC); 12.8 W (PoE)
ePoE	Yes

Environment

Operating Temperature	−30 °C to +70 °C (−22 °F to +158 °F)

Operating Humidity	≤95%
Storage Temperature	−40 °C to +70 °C

Physical Characteristics

Protection	IP67
Reliability	Surge protection: 6 kV Air discharge: 15 kV Contact discharge: 8 kV

Structure

Product Dimensions	291.7 mm × 103.8 mm × 96.7 mm (11.48" × 4.09" × 3.81") (L × W × H)
Packaging Dimensions	Package: 365 mm × 175 mm × 176 mm (14.37" × 6.89 × 6.93") (L × W × H) Protection box: 902 mm × 380 mm × 380 mm (35.51" × 14.96" × 14.96") (L × W × H)
Net Weight	≤1.4 kg (3.09 lb)
Gross Weight	≤1.7 kg (3.75 lb)
Lens	Included
Bracket	Wall mount: PFA121 (optional) Corner mount: PFA151, PFA121 (optional) Pole mount: PFA152-E, PFA121 (optional)

Certification

Certifications	CE/FCC

Heat Detection Distance

Focal Length	Max. Distance
13 mm	113.3 m (371.71 ft)
19 mm	164.6 m (540.02 ft)
25 mm	217.9 m (714.89 ft)

Note:
The table displays the measured distances obtained from using the target size 0.2 m × 0.2 m for testing in an environment where the temperature is 23 °C and the relative humidity is below 60%.
The table is for reference only. The distances within it are subject to actual conditions including atmospheric conditions, target size, the installation site, and more.

Perimeter Protection Distance

Focal Length	Distance (Human)	Distance (Vehicle)
13 mm	91 m (298.56 ft)	273 m (895.67 ft)
19 mm	133 m (436.35 ft)	399 m (1,309.06 ft)
25 mm	175 m (574.15 ft)	525 m (1,722.44 ft)

Note:
The table displays the optimal distance obtained from using the target sizes 1.8 m × 0.5 m (human) and 4 m × 1.4 m (vehicle) for testing in an environment where the temperature is 23 °C and the relative humidity is below 60%.
The table is for reference only. The distances within it are subject to actual conditions including atmospheric conditions, target size, the installation site, and more.

Ordering Information

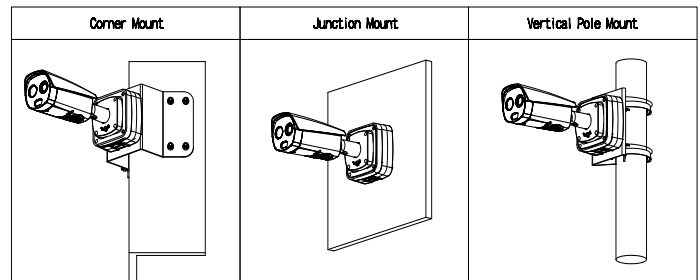| Type	Model	Description
Security	DHI-TPC-BF4441-B13F6	Thermal Network Hybrid Bullet Camera
	DHI-TPC-BF4441-B19F8	Thermal Network Hybrid Bullet Camera
	DHI-TPC-BF4441-B25F8	Thermal Network Hybrid Bullet Camera
Accessories (Optional)	PFA121 + PFA151	Corner Mount
	PFA121	Junction Mount
	PFA152-E + PFA121	Vertical Pole Mount

Accessories

Optional:

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

Corner Mount	Junction Mount	Vertical Pole Mount

Dimensions (mm[inch])