DHI-TPC-DF1241

Thermal Network Mini Hybrid Bullet Camera

- Vanadium oxide uncooled focal plane detector.
- 4Megapixel progressive scan CMOS.
- AI functions: heat detection, tripwire, human/vehicle classification, smoking detection, and call detection.
- Remote auxiliary management.
- Dual image fusion (visible and thermal channels).
- Wide input voltage 12 VDC ± 20%, and PoE.
- IP67 rated.

Featuring thermal and visible channels, Eureka series thermal network camera offers various AI functions such as tripwire, intrusion, call detection, smoking detection, and heat detection. It can be used in short-distance monitoring scenes such as perimeter protection and heat monitoring, which provides an all-in-one video surveillance solution for small and medium scenes. The camera is widely applied in factory, parking lot, villa, and more.

Technical Specification

Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Max. Resolution	256 (H) × 192 (V)
Pixel Pitch	12 μm
Spectral Range	8 μm–14 μm
Thermal Sensitivity (NETD)	< 40 mK (@f/1.0, 25 Hz, 300 K)
Field of View	2 mm: H: 87.8°; V: 63.8° 3.5 mm: H: 50.6°; V: 37.8° 7 mm: H: 24°; V: 18°
Close Focus Distance	2mm: 0.3 m (0.98 ft) 3.5 mm: 0.5 m (1.64 ft) 7 mm: 1 m (3.28 ft)
Detection Distance①	2 mm: Vehicle: 222 m (728 ft); Human: 83 m (272 ft) 3.5 mm: Vehicle: 389 m (1,276 ft); Human: 146 m (479 ft) 7 mm: Vehicle: 778 m (2,552 ft); Human: 292 m (958 ft)
Recognition Distance②	2 mm: Vehicle: 55 m (80 ft); Human: 21 m (69 ft) 3.5 mm: Vehicle: 97 m (318 ft); Human: 38 m (125 ft) 7 mm: Vehicle: 194 m (636 ft) ; Human: 75 m (246 ft)
Identification Distance③	2 mm: Vehicle: 27 m (89ft); Human: 11 m (36 ft) 3.5 mm: Vehicle: 49 m (161 ft); Human: 19 m (622 ft) 7 mm: Vehicle: 97 m (318 ft); Human: 38 m (125 ft)

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

Aperture	F1.0
Digital Detail Enhancement (DDE)	Yes
Digital Zoom	16 levels
AGC	Auto; Manual
Noise Reduction	2D NR; 3D NR
Image Flip	90°; 180°; 270°
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)
Fusion Mode	3 (Warm color; Cool color; Ironred)

Visible

Image Sensor	1/2.7" CMOS

Max. Resolution	2336 (H) × 1752 (V)
Pixel	4 MP
Electronic Shutter Speed	1/30,000 s–1 s
Min. Illumination	Color: 0.05 lux Black & white: 0.005 lux 0 lux (IR on)
IR Illumination Distance	≥30 m (98.43 ft)
IR Illuminator On/Off Control	Auto; Manual
Aperture	2 mm: F2.2 4 mm: F1.6 8 mm: F2.0
Field of View	2 mm: H: 94°; V: 72° 4 mm: H: 71.2°; V: 52° 8 mm: H: 33.4°; V: 25°
Focus Control	Fixed
Close Focus Distance	2 mm: 0.3 m (0.98 ft) 4 mm: 1 m (3.28 ft) 8 mm: 2.5 m (8.2 ft)
Day/Night	Auto (ICR); Color; B/W
BLC	Yes
WDR	DWDR
HLC	Yes
White Balance	Auto; Manual; Indoor; Outdoor; Tracking; Street lamp; Natural
AGC	Auto; Manual
Noise Reduction	2D NR; 3D NR
S/N Ratio	≥55 dB
Region of Interest (RoI)	Yes
Image Flip	90°; 180°; 270°
Exposure Compensation	Yes

Intelligence

General Intelligence	Tripwire; Intrusion
Advanced Intelligence	Heat Detection & Alarm Cold & Hot Spot Trace Human & Vehicle Classification Smoking Detection Call Detection

Video and Audio

Video Compression	H.265; H.264M; H.264H; H.264B; MJEPG
Resolution	Thermal: Main Stream: 1280 × 960 (1.3M); XVGA (1024 × 768); VGA (640 × 480); 256 × 192; 1280 × 960 (by default) Sub Stream: VGA (640 × 480); 256 × 192; 256 × 192 (by default) Visual: Main Stream: 2336 × 1752; 1080p (1920 × 1080); 720p (1280 × 720); D1 (704 × 576); 2336 × 1752 (by default) Sub Stream: 720p (1280 × 720); D1 (704 × 576); CIF (352 × 288); 352 × 288 (by default)
Frame Rate	Thermal 50 Hz: (main stream) 1 fps–25 fps adjustable, 25 fps by default; (sub stream) 1 fps–25 fps adjustable, 15 fps by default 60 Hz: (main stream) 1 fps–30 fps adjustable, 30 fps by default; (sub stream) 1 fps–30 fps adjustable, 15 fps by default Visual 50 Hz: (main stream) 1 fps–25 fps adjustable, 25 fps by default; (sub stream) 1 fps–25 fps adjustable, 15 fps by default 60 Hz: (main stream) 1 fps–30 fps adjustable, 30 fps by default; (sub stream) 1 fps–30 fps adjustable, 15 fps by default
Audio Compression	G.711a; G.711mu; PCM

Network

Protocol	HTTPS; HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP
Edge Storage	Micro SD card (256 G)
Interoperability	ONVIF; CGI
Browser	IE: IE 8 and later Google: 42 and earlier Firefox: 42 and earlier
User/Host	10
Security	Authorized username and password; attached MAC address; encrypted HTTPS; IEEE 802.1x; controlled network access

Port

Network	1 × RJ-45 (10/100 Base-T)
Audio Input	1
Audio Output	1
Alarm Input	1
Alarm Output	1
RS-485	1 pair

Power

Power Supply	12 VDC, 1.2 A (± 20%); PoE
Power Consumption	Basic: < 6.5 W (LED off, 12 VDC); 9.1 W (LED off, PoE) Max: < 13 W (LED on, heater on, 12 VDC); 18.2 W (LED on, heater on, PoE)

Environment

Operating Temperature	–30 °C to +50 °C (–22 °F to +122 °F)
torage Temperature	–30 °C to +70 °C (–22 °F to +158 °F)
Operating Humidity	≤95%
Protection	IP67

Structure

Product Dimensions	122 mm × 122 mm × 112 mm (4.80" × 4.80" × 4.41") (L × W × H)
Packaging Dimensions	155 mm × 155 mm × 135 mm (6.10" × 6.10" × 5.31") (L × W × H)

Net Weight	≤0.85 kg (1.87 lb)
Gross Weight	≤1 kg (2.20 lb)

Heat Detection Distance

Focal Length	Recommended Distance	Max. Distance
2 mm	8.3 m (27.23 ft)	12 m (39.37 ft)
3.5 mm	14.6 m (47.9 ft)	22 m (72.18 ft)
7 mm	29.2 m (95.8 ft)	40 m (131.23 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)
2 mm	14 m (45.93 ft)	42 m (137.80 ft)
3.5 mm	24.5 m (80.38ft)	72.5 m (237.86 ft)
7 mm	49 m (160.76 ft)	146.5 m (480.64 ft)

Note:
The table displays the measured distances obtained from using the target sizes 1.8 m × 0.5 m (human) and 1.4 m × 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	Part Number	Description
Thermal Camera	DHI-TPC-DF1241-B2F2-DW-S2	Thermal: 256 × 192 2 mm lens Visible: 4 MP 2 mm lens
	DHI-TPC-DF1241-B3F4-DW-S2	Thermal: 256 × 192 3.5 mm lens Visible: 4 MP 4 mm lens
	DHI-TPC-DF1241-B7F8-DW-S2	Thermal: 256 × 192 7 mm lens Visible: 4 MP 8 mm lens
Accessories (Optional)	PFB203W	Wall-mount Bracket
	PFA106	Ceiling-mount Adapter Plate
	PFB220C	Ceiling-mount Bracket
	PFA130-E	Junction Box
	PFM320D	Power Adapter

Accessories

Optional:

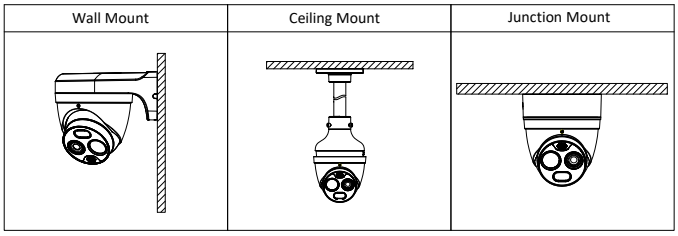
PFB203W
Wall-mount bracket

PFA106
Ceiling-mount adapter plate

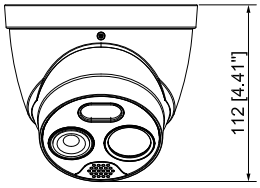
PFB220C
Ceiling-mount bracket

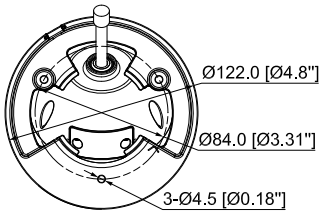
PFA130-E
Junction box

PFM320D
Power adapter



Dimensions (mm[inch])





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