

# DHI-TPC-DF1241-T

## Thermal Network Mini Hybrid Eyeball Camera



- Vanadium oxide uncooled focal plane detector.
- 4Megapixel progressive scan CMOS.
- AI functions: heat detection, tripwire, human/vehicle classification, smoking detection, and call detection.
- Temperature measurement range of  $-20\text{ }^{\circ}\text{C}$  to  $+550\text{ }^{\circ}\text{C}$ .
- Flexible rules and alarms.
- Remote auxiliary management.
- Dual image fusion (visible and thermal channels).
- Wide input voltage  $12\text{ VDC} \pm 20\%$ , 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 temperature measurement. 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 waste, laundry, warehouse, and more.

### Technical Specification

#### Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Max. Resolution	256 (H) × 192 (V)
Pixel Pitch	12 $\mu\text{m}$
Spectral Range	8 $\mu\text{m}$ –14 $\mu\text{m}$
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 Distance <sup>①</sup>	2 mm: Vehicle: 256 m (841.24 ft); Human: 83 m (272 ft) 3.5 mm: Vehicle: 449 m (1,472.17 ft); Human: 146 m (479 ft) 7 mm: Vehicle: 897 m (2,944.34 ft); Human: 292 m (958 ft)
Recognition Distance <sup>②</sup>	2 mm: Vehicle: 63 m (206.34 ft); Human: 21 m (69 ft) 3.5 mm: Vehicle: 110 m (361.10 ft); Human: 38 m (125 ft) 7 mm: Vehicle: 220 m (722.20 ft); Human: 75 m (246 ft)

Identification Distance <sup>③</sup>	2 mm: Vehicle: 32 m (104.15 ft); Human: 11 m (36 ft) 3.5 mm: Vehicle: 56 m (182.27 ft); Human: 19 m (622 ft) 7 mm: Vehicle: 111 m (364.54 ft); Human: 38 m (125 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).
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

## Temperature Measurement

Temperature Range	Low Temperature Mode: –20 °C to +150 °C (–4 °F to +302 °F) High Temperature Mode: 0 °C to +550 °C (+32 °F to +1022 °F)
Temperature Accuracy	Max (± 2 °C, ± 2%) Operating Temperature: –20 °C to +50 °C (–4 °F to +122 °F)
Temperature Mode	Spot: 12 Line: 12 Area: 12 Support 12 rules simultaneously

## Video and Audio

Video Compression	H.265; H.264; H.264H; MJPEG
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Resolution	Thermal: Main Stream: 1280 × 960 (1.3M); X VGA (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; DaHua SDK
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: <4.5 W (12 VDC, LED off); 4.8 W (PoE) Max: <10.1 W (12 VDC, LED on, heater on); 12.3 W (PoE)

## Environment

Operating Temperature	–30 °C to +60 °C (–22 °F to +140 °F)
Storage 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	Max. Distance
2 mm	25 m (82.02 ft)
3.5 mm	45 m (147.64 ft)
7 mm	86 m (282.15 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.

## Temperature Measurement Range

Focal Length	Min. Distance	Max. Distance
2 mm	0.5 m (1.64 ft)	2.5 m (8.20 ft)
3.5 mm	1 m (3.25 ft)	5 m (16.40 ft)
7 mm	2 m (6.56 ft)	8 m (26.25 ft)

### Note:

The table displays the measured distances obtained from using the target size 0.1 m × 0.1 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.

## Accessories

### Optional:



PFB203W  
Wall-mount bracket



PFA106  
Ceiling-mount  
adapter plate



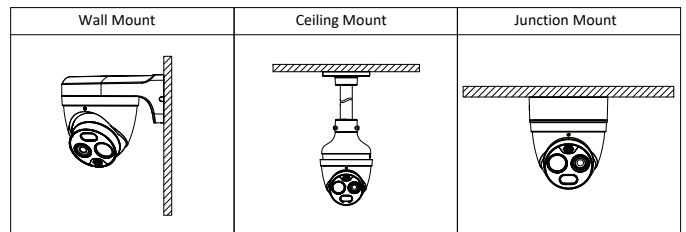
PFB220C  
Ceiling-mount  
bracket



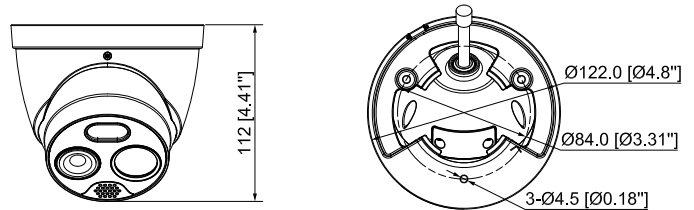
PFA130-E  
Junction box



PFM320D  
Power adapter



## Dimensions (mm[inch])



## Ordering Information

Type	Model	Description
Thermal Camera	DHI-TPC-DF1241-TB2F2-DW-S2	Thermal: 256 × 192 2 mm lens Visible: 4 MP 2 mm lens
	DHI-TPC-DF1241-TB3F4-DW-S2	Thermal: 256 × 192 3.5 mm lens Visible: 4 MP 4 mm lens
	DHI-TPC-DF1241-TB7F8-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