dahua TECHNOLOGY

DHI-TPC-SD5441
Thermal Hybrid Speed Dome Camera

- Vanadium oxide uncooled focal plane detector.
- 4Megapixel progressive scan CMOS.
- Visible lens offers 45× optical zoom.
- AI functions: boat detection, heat detection, tripwire, intrusion, and human/vehicle classification.
- Maximum IR illumination distance is 100 m.
- Dual image fusion (visible and thermal images).
- Pan: 0° to 360°, tilt: −10° to +90°.
- Wide input voltage 36 VDC ± 50%, and Hi-PoE.
- IP66 rated.

Featuring thermal and visible channels, Thermal Network Hybrid Speed Dome Camera offers various AI functions such as heat detection, smoke detection, tripwire, intrusion, human/vehicle classification, and boat detection. The camera is widely applied in outdoor scenes of the medium-distance perimeter protection and heat detection.

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)	<35 mK (@f/1.0)
Focal Length	25 mm; 35 mm; 50mm
Field of View	25 mm: H: 15.5°; V: 11.6° 35 mm: H: 11.1°; V: 8.3° 50 mm:H: 7.8°; V: 5.8°
Thermal Focus Control	Fixed-focal
Close Focus Distance	25 mm: 0.5 m (1.64 ft) 35 mm: 0.5 m (1.64 ft) 50 mm: 0.5 m (1.64 ft)
Detection Distance[1]	25 mm: Vehicle: Vehicle: 2,262 m (7,422.71 ft); Human: 735 m (2,411.42 ft) 35 mm: Vehicle: 3,167 m (10,391.80 ft); Human: 1,029 m (3,375.98 ft) 50 mm: Vehicle: 4,525 m (14,845.43 ft); Human: 1,470 m (4,822.83 ft)
Recognition Distance[2]	25 mm: Vehicle: 555 m (1,820.67 ft); Human: 189 m (620.08 ft) 35 mm: Vehicle: 777 m (2,548.93 ft); Human: 265 m (869.42 ft) 50 mm: Vehicle: 1,110 m (3,641.33 ft); Human: 378 m (1,240.16 ft)
Identification Distance[3]	25 mm: Vehicle: 280 m (919.00 ft); Human: 95 m (311.68 ft) 35 mm: Vehicle: 392 m (1,286.60 ft); Human: 132 m (433.07 ft) 50 mm: Vehicle: 560 m (1,838.01 ft); Human: 189 m (620.08 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°
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	1/2.8" CMOS
Max. Resolution	2688 (H) × 1520 (V)
Pixel	4 MP

Horizontal Definition	Center ≥150 TVL Edge ≥100 TVL
Min. Illumination	Color: 0.01 lux Black & white: 0.001 lux 0 lux (IR 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	Auto
Image Flip	180°
Exposure Compensation	Yes
Visible Focus Control	Manual
Focal Length	3.95 mm–177.75 mm
Field of View	H: 67.5°–1.9° V: 39.4°–1.1°
Close Focus Distance	1 m–10 m (3.28 ft–32.81 ft)
Illuminator On/Off Control	Auto/Manual
Illumination Distance	100 m (328.08 ft)

Audio and Video

Video Compression	H.265; H.264M; H.264H; H.264B
Resolution	Thermal: Main stream: 1280 × 1024; 1280 × 720; 640 × 512; 1280 × 1024 (default) Sub stream: 640 × 512; 320 × 256; 640 × 512 (default) Visible: Main stream: 2688 × 1520 (optional); 2560 × 1440; 1080p (1920 × 1080); 1280 × 720; 704 × 576; 2560 × 1440 (default) Sub stream: 1920 × 1080; 1280 × 720; 704 × 576
Video 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 Visible: 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
Image Encoding Format	JPEG

PTZ

Pan/Tilt Range	Pan: 0° to 360° endless Tilt: −10° to +90°
Manual Control Speed	Pan: 0.1°/s to 200°/s Tilt: 0.1°/s to 120°/s
Preset Speed	Pan: 240°/s Tilt: 200°/s
Preset	300
Tour	8 (up to 32 presets per tour)
Pattern	5
Scan	5
Power-off Memory	Yes
Privacy Masking	4 areas in the same view
Idle Motion	Preset; auto pattern; auto tour; pan; progressive scan

Function

Two-way Audio	Yes
Network Protocol	HTTP; HTTPS; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP; Multicast; SFTP; 802.1x
Region of Interest (RoI)	Yes
Storage	Micro SD card
Micro SD Card (Max.)	512 GB
Interoperability	ONVIF; CGI; Dahua SDK
Browser	IE: IE8 and later 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
PIP	Yes (Intelligence automatically turns off when PIP is on)

Intelligence

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

Port

Analog Output	1 × CVBS output; BNC port
Network Port	1 × RJ-45 (10/100 Base-T)
Alarm Input	7
Alarm Output	2
Audio Input	1

Audio Output	1
RS-485	1

Power

Power Supply	36 VDC ± 50%, Hi-PoE
Power Consumption	Basic: ≤21 W (36 VDC); 16 W (PoE) Max: ≤40 W (36 VDC); 41 W (PoE)

Environment

Operating Temperature	−30 °C to +60 °C (−22 °F to +140 °F)
Operating Humidity	≤95%
Storage Temperature	−30 °C to +70 °C (−22 °F to +158 °F)

Physical Characteristics

Protection	IP66
Reliability	Surge protection: 6 kV Air discharge: 15 kV Contact discharge: 8 kV

Structure

Product Dimensions	Φ240 mm × 382 mm (Φ9.45" × 15.04")
Packaging Dimensions	319 mm × 319 mm × 521 mm (12.56" × 12.56" × 20.51") (L × W × H)
Net Weight	≤8 kg (17.64 lb)
Gross Weight	≤10 kg (22.05 lb)

Heat Detection Distance

Focal Length	Max. Distance
25 mm	1,500 m (4,921.26 ft)
35 mm	2,100 m (6,889.76 ft)
50 mm	3,000 m (9,842.52 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)
25 mm	175 m (574.15 ft)	525 m (1,722.44 ft)
35 mm	245 m (803.81 ft)	735 m (2,411.42 ft)
50 mm	350 m (1,148.29 ft)	1,050 m (3,444.88 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
Thermal Camera	DHI-TPC-SD5441-B25Z45-BM-S24	Thermal: 25 mm; Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-B35Z45-BM-S24	Thermal: 35 mm; Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-B50Z45-BM-S24	Thermal: 50 mm; Visible: 3.95 mm–177.75 mm
Accessories	PFA111	Joint Connector
	36 V/2.23 A	Power Supply
	10 A/250 V	Power Cord
	PFB303W	Wall Mount
	PFB303W + PFA120	Wall Mount
	PFB303W + PFA120 + PFA150	Vertical Pole Mount
	PFB300C	Ceiling Mount
	PFB303W + PFA120 + PFA151	Corner Mount

Accessories

Included:

PFA111
Joint Connector

36 V/2.23 A
Power Supply

10 A/250 V
Power Cord

PFB303W
Wall Mount
Bracket

Optional:
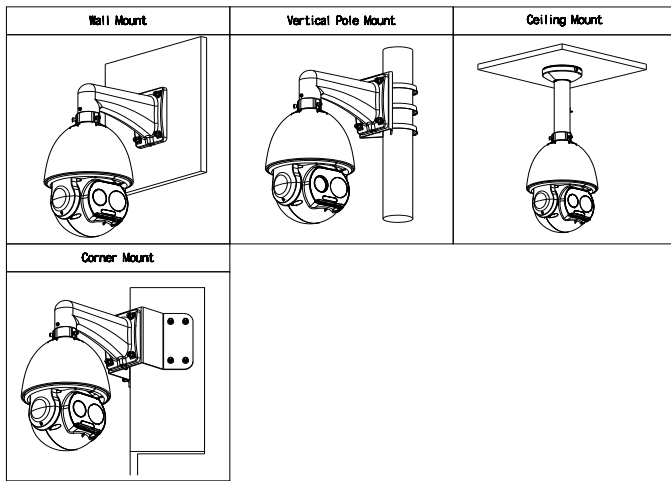

PFB303W + PFA120
Wall Mount
Bracket

PFB303W + PFA120 +
PFA150
Vertical Pole Mount
Bracket

PFB300C
Ceiling Mount
Bracket

PFB303W + PFA120 +
PFA151
Corner Mount Bracket

Wall Mount	Vertical Pole Mount	Ceiling Mount

Corner Mount

Dimensions (mm[inch])

357.0[14.05"]

213.6[8.41"]

Ø239.8[9.44"]

196.0[7.72"]