

# DHI-TPC-SD5441-T

## Thermal Hybrid Speed Dome Camera



- Vanadium oxide uncooled focal plane detector.
- 4Megapixel progressive scan CMOS.
- AI functions: boat detection, smoke detection, heat detection, tripwire, intrusion, and human/vehicle classification.
- Maximum IR illumination distance is 100 m.
- Pan: 0° to 360°, tilt: -10° to +90°.
- Temperature measurement range of -20 °C to +550 °C.
- Wide input voltage 36 VDC ± 50%.
- IP66 rated.

Featuring thermal and visible channels, Thermal Network Hybrid Speed Dome Camera measures temperature through the thermal channel, with high accuracy Max ( $\pm 2^{\circ}\text{C}$ ,  $\pm 2\%$ ), the camera supports multiple temperature measurement rules of spot, line and region at the same time, and generates alarm when the temperature is abnormal, which can help user find potential hazard. The image details can be confirmed by the visible channel.

### Technical Specification

#### General

Appearance	Thermal Network Hybrid Speed Dome Camera
Type	Radiometry

#### Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Effective Pixels	400 (H) × 300 (V)
Pixel Pitch	12 $\mu\text{m}$
Spectral Range	8 $\mu\text{m}$ –14 $\mu\text{m}$
Sensitivity (NETD)	<35 mK (@f/1.0, 25 Hz, 300 K)
Focal Length	7 mm; 13 mm; 19 mm; 25 mm; 35 mm; 50 mm
Field of View	7 mm: H: 51.8°; V: 38.8° 13 mm: H: 21.24°; V: 15.94° 19 mm: H: 14.5°; V: 10.9° 25 mm: H: 11°; V: 8.2° 35 mm: H: 7.85°; V: 5.89° 50 mm: H: 5.5°; V: 4.12°
Thermal Focus Control	Fixed-focal
Digital Detail Enhancement (DDE)	Yes
Thermal Image Stabilization	Electronic Image Stabilization (EIS)
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)
Temperature Measurement Range	Low temperature mode: -20 °C (-4 °F) to +150 °C (+302 °F) High temperature mode: 0 °C (+34 °F) to +550 °C (+1022 °F) Auto mode
Temperature Measurement Accuracy	Max. ( $\pm 2^{\circ}\text{C}$ , $\pm 2\%$ ) Operating temperature: -20 °C (-4 °F) to +50 °C (+122 °F)
Temperature Measurement Mode	Spot: 12 Line: 12 Area: 12 Supports 12 rules simultaneously

#### Visible

Image Sensor	1/2.8" CMOS
Max. Resolution	2688 (H) × 1520 (V)
Pixel	4 MP
Horizontal Definition	Center $\geq 1200$ TVL Edge $\geq 900$ 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	$\geq 55$ dB
White Balance	Auto; manual; indoor; outdoor; tracking; sodium lamp; street lamp; natural
Defog	Electronic defog

Visible Image Stabilization	Electronic Image Stabilization (EIS)
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	DC Auto
Exposure Compensation	Yes
Visible Focus Control	Auto/Semi-auto/Manual
Focal Length	3.95 mm–177.75 mm
Zoom Speed	<7 s
Close Focus Distance	1 m–10 m (3.28 ft–32.81 ft)
Optical Zoom	45×
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 × 960; 1280 × 720; 400 × 300; 1280 × 960 (default); Sub stream: 640 × 512; 640 × 480; 400 × 300; 400 × 300 (default); Visible: Main stream: 4MP (2688 × 1520); 4MP (2560 × 1440); 2MP (1920 × 1080); 720p (1280 × 720); D1 (704 × 576); 4MP (2560 × 1440) (default); Sub stream: 2MP (1920 × 1080); 720p (1280 × 720); D1 (704 × 576); CIF (352 × 288); CIF (352 × 288) (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–50 fps, 50 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–60 fps, 60 fps by default Sub stream: 1 fps–30 fps, 15 fps by default
Audio Compression	G.711a; G.711mu; AAC
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	2
Power-off Memory	Yes
Privacy Masking	4 blocks
Idle Motion	Preset; pattern; tour; pan; 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
Regional Focus	Yes
Storage	FTP; Micro SD card (optional)
Interoperability	ONVIF; CGI; DaHua SDK
Browser	IE: IE8 and later (including the browsers with IE kernel, such as 360 Explorer, Sougou Explorer) 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
Micro SD Card (Max.)	512 GB

## IVS

IVS	Yes
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## Intelligence

Cold/Hot Spot Trace	Yes
IVS (Perimeter Protection)	Yes. Supports tripwire and intrusion.
Target Distinction	Human/Vehicle Classification
Target Tracking	Yes
Smoke Detection	Yes
Smoke Detection Distance	4,000 m (13,123.36 ft)
Boat Tracking	Yes

## 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 Max: ≤40 W
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
Product Dimensions	Φ240.0 mm × 382.0 mm (Φ9.45" × 15.04")
Packaging Dimensions	319.0 mm × 319.0 mm × 521.0 mm (12.56" × 12.56" × 20.51") (L × W × H)
Net Weight	≤8 kg (17.64 lb)
Gross Weight	≤10 kg (22.05 lb)
Lens	Included
Reliability	Surge protection: 6 kV Air discharge of 15 kV Contact discharge of 8 kV
Anti-corrosion Level	Basic Protection

Certification

Certifications	CE
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Temperature Measurement Distance

Focal Length	Min.Distance	Min.Distance
7 mm	1 m (3.28 ft)	6.5 m (21.33 ft)
13 mm	2 m (6.56 ft)	11 m (36.09 ft)
19 mm	3 m (9.84 ft)	16 m (52.49 ft)
25 mm	4 m (13.12 ft)	21 m (68.90 ft)
35 mm	6 m (19.69 ft)	30 m (98.43 ft)
50 mm	9 m (29.53 ft)	42 m (137.80 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.

DRI Distance

Focal Length	Detection Distance <sup>①</sup>	Recognition Distance <sup>②</sup>	Identification Distance <sup>③</sup>
7 mm	Vehicle: 894 m (2,933.07 ft); Human: 292 m (958.01 ft)	Vehicle: 224 m (734.91 ft); Human: 73 m (239.50 ft)	Vehicle: 112 m (367.45 ft); Human: 36 m (118.11 ft)
13 mm	Vehicle: 1,661 m (5,449.48 ft); Human: 542 m (1,778.22 ft)	Vehicle: 415 m (1,361.55 ft); Human: 135 m (442.91 ft)	Vehicle: 208 m (682.41 ft); Human: 68 m (223.10 ft)

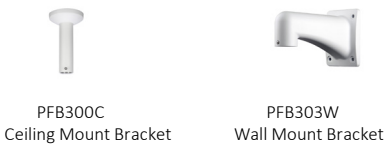
19 mm	Vehicle: 2,428 m (7,965.88 ft); Human: 792 m (2,598.43 ft)	Vehicle: 607 m (1,991.47 ft); Human: 198 m (649.61 ft)	Vehicle: 303 m (994.09 ft); Human: 99 m (324.80 ft)
25 mm	Vehicle: 3,194 m (10,479.00 ft); Human: 1,042 m (3,418.64 ft)	Vehicle: 799 m (2,578.74 ft); Human: 260 m (857.98 ft)	Vehicle: 399 m (1,309.06 ft); Human: 130 m (426.51 ft)
35 mm	Vehicle: 4,472 m (14,671.92 ft); Human: 1,458 m (4,783.46 ft)	Vehicle: 1,118 m (3,667.98 ft); Human: 365 m (1,197.51 ft)	Vehicle: 559 m (1,833.99 ft); Human: 182 m (597.11 ft)
50 mm	Vehicle: 6,389 m (20,961.29 ft); Human: 2,083 m (6,833.99 ft)	Vehicle: 1,579 m (5,180.45 ft); Human: 521 m (1,709.32 ft)	Vehicle: 799 m (2,621.39 ft); Human: 260 m (853.02 ft)

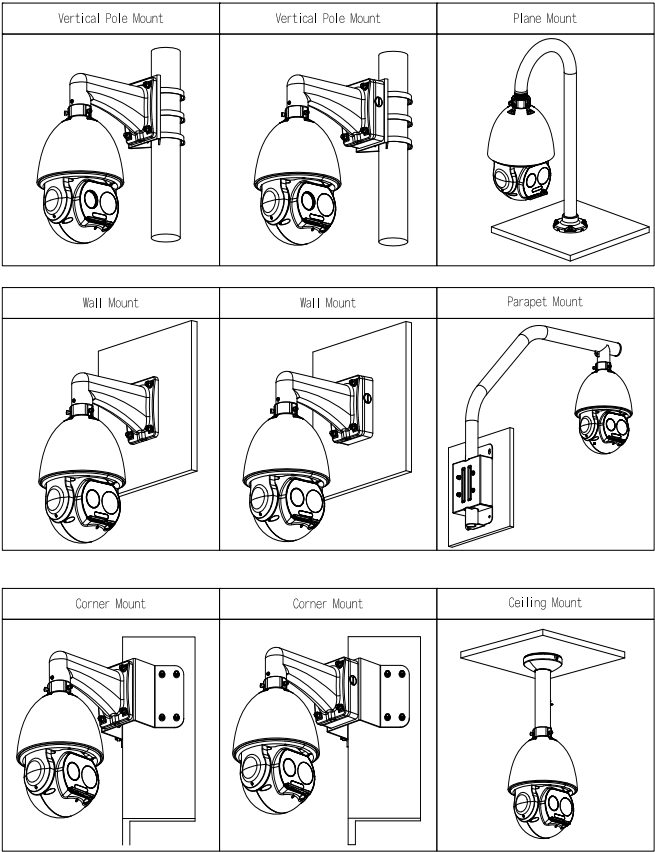
- ①Detection Distance: Detects objects, but cannot recognize their characteristics (objects must cover more than 1.5 pixels of the image).
- ②Recognition Distance: Classifies objects into general categories, such as human, vehicle (the object must cover more than 6 pixels of the image).
- ③Identification Distance: Classifies objects into specific categories based on their characteristics, such as engineering truck, car (the object must cover more than 12 pixels of the image).
- Note:  
The table is the standard theoretical calculation and is for reference only. The distances within it are subject to actual conditions including atmospheric conditions, target size, the installation site, and more. For the intelligent detection distance, refer to the table of Perimeter Protection Distance (IVS Distance) above.

Ordering Information		
Type	Model	Description
Thermal Camera	DHI-TPC-SD5441-TB7Z45-DC-S24-M	Thermal: 7 mm Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-TB13Z45-DC-S24-M	Thermal: 13 mm Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-TB19Z45-DC-S24-M	Thermal: 19 mm; Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-TB25Z45-DC-S24-M	Thermal: 25 mm; Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-TBM25Z45-DC-S24-M	Thermal: 25 mm; Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-TB35Z45-DC-S24-M	Thermal: 35 mm; Visible: 3.95 mm–177.75 mm
	DHI-TPC-SD5441-TB50Z45-DC-S24-M	Thermal: 50 mm; Visible: 3.95 mm–177.75 mm
Accessories (Optional)	PFB300C	Ceiling Mount Bracket
	PFB303W	Wall Mount Bracket

Accessories

Optional:





Dimensions (mm[inch])

