DHI-TPC-SD5441

Thermal Hybrid Speed Dome Camera

· Vanadium oxide uncooled focal plane detector.

· 4Megapixel progressive scan CMOS.

· Visible lens offers 45× optical zoom.

· Offers various AI functions such as boat, smoke, and heat detection, tripwire, target filtering and intrusion detection.

· Built-in IR LED, and the IR illumination distance ≥100 m.

· Dual image fusion (visible and thermal images).

· 36 VDC ± 50%/Hi-PoE power supply.

· IP66 rated.

System Overview

With its dual lens design, Thermal Hybrid Speed Dome Camera provides an all-in-one solution for video surveillance in outdoor and indoor scenarios. It adopts Thermal and Visible Technology to capture vivid, detailed images even in dark, small areas. Through its thermal camera, it can capture clear images even in poor or dark lighting, and can detect and reveal details through its visible camera that has Smart IR.

Functions

Uncooled VOx Technology

Dahua thermal cameras use uncooled VOx sensor technology. The detector is small-sized, and highly sensitive allowing the camera to reveal images in greater detail, giving you more visual information on a monitored site. It also improves the accuracy of temperature measurements, ensuring that even minute temperature changes are detected.

High Sensitivity

High thermal sensitivity (< 35 mK) makes these cameras capture images in fine detail, and detect subtle and large temperature changes.

Intelligent Video System (IVS)

With its built-in intelligent video analytics, the camera detects and analyzes moving objects for improved video surveillance. The camera has a wide range of intelligent detection capabilities, allowing the detection of multiple types of objects and object behaviors, such as vehicle detection. IVS also supports tripwire analytics, allowing the camera to detect when a pre-determined line has been crossed.

Heat Detection & Alarm

With its extended detection range, the camera can detect heat sources that are in locations distant to it. It is also highly sensitive to temperature changes, allowing the accuracy of its heat source detection to be higher than cameras that work in the visible light range.

AI Functions

Supports multiple intelligent functions such as heat detection, tripwire, intrusion, and person and vehicle classification detection. It supports alarm linkages, such as sending emails and triggering external alarms.

Scene

It is suitable for use in factories, power stations, rivers, scenic spots, and other scenarios.

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: 1,961 m (6,433.73 ft); Human: 735 m (2,411.42 ft) 35 mm: Vehicle: 2,745 m (9,005.91 ft); Human: 1,029 m (3,375.98 ft) 50 mm: Vehicle: 3,922 m (12,867.45 ft); Human: 1,470 m (4,822.83 ft)
Recognition Distance[2]	25 mm: Vehicle: 490 m (1,607.61 ft); Human: 189 m (620.08 ft) 35 mm: Vehicle: 686 m (2,250.66 ft); Human: 265 m (869.42 ft) 50 mm: Vehicle: 980 m (3,215.22 ft); Human: 378 m (1,240.16 ft)
Identification Distance[3]	25 mm: Vehicle: 245 m (803.81 ft); Human: 95 m (311.68 ft) 35 mm: Vehicle: 343 m (1,125.33 ft); Human: 132 m (433.07 ft) 50 mm: Vehicle: 490 m (1,607.61 ft); Human: 189 m (620.08 ft)

Note:
[1] Detection Distance: Detects objects, but cannot recognize their characteristics. Detected objects only cover a small amount of pixels (objects must cover more than 3.6 pixels of the image).
[2] Recognition Distance: Classifies objects into general categories, such as human, vehicle, and building (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 soldier, pickup truck, and gas station (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 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
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	25 mm	35 mm	50 mm
Heat Detection Distance (Recommended)	7750 m (2,460.63 ft)	1,050 m (3,444.88 ft)	1,500 m (4,921.26 ft)
Heat Detection Distance (Max.)	1,500 m (4,921.26 ft)	2,100 m (6,889.76 ft)	3,000 m (9,842.52 ft)

Note:
The table displays the measured distances obtained from using the target size 0.2 m x 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

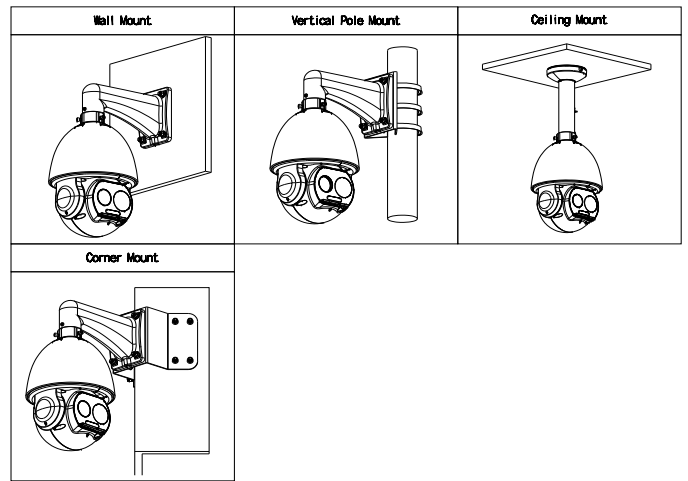| Focal Length	25 mm	35 mm	50 mm
Perimeter Protection Distance (Human)	175 m (574.15 ft)	245 m (803.81 ft)	350 m (1,148.29 ft)
Perimeter Protection Distance (Vehicle)	525 m (1722.44 ft)	735 m (2,411.42 ft)	1,050 m (3,444.88 ft)

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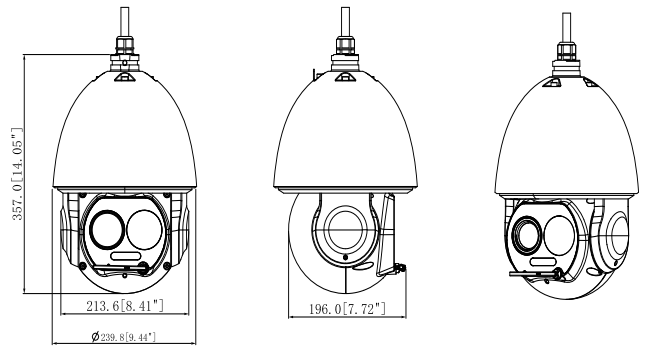The table is for reference only. The distances within it are subject to actual conditions including atmospheric conditions, target size, the installation site, and more.

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

Dimensions (mm[inch])

357.0[14.05"]
213.6[8.41"]
Ø239.8[9.44"]
196.0[7.72"]