dahua
TECHNOLOGY

DHI-TPC-SD8441B

Thermal Network Hybrid Speed Dome Camera

· Vanadium oxide uncooled focal plane detector.

· 4 megapixel progressive scan CMOS

· AI functions: boat detection, engineering truck detection, heat detection, tripwire, intrusion, and human/vehicle classification.

· Pan: 0° to 360°, tilt: −10° to +90°.

· Maximum IR illumination distance is 150 m.

· Auto rain-sensing wiper.

· 36 VDC ± 25%.

· 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: 1 m (3.28 ft) 35 mm: 1 m (3.28 ft) 50 mm: 1 m (3.28 ft)
Detection Distance[1]	25 mm: 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: 1,471 m (4,826.12 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°; Mirror
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	1/1.8" CMOS
Max. Resolution	2688 (H) × 1520 (V)

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Pixel	4 MP
Horizontal Definition	≥1200 TVL
Min. Illumination	Color: 0.001 lux@F1.4 Black & white: 0.0001 lux@F1.4 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
Visible Image Stabilization	Electronic Image Stabilization
Electronic Shutter Speed	1 s–1/30,000 s (auto/manual)
BLC	Yes
WDR	Yes
HLC	Yes
Digital Zoom	Yes
Day/Night	Auto (ICR); Color; B/W
Iris Control	Auto
Image Flip	Yes
Exposure Compensation	Yes
Visible Focus Control	Auto/semi-auto/manual
Focal Length	5.5 mm–248 mm
Zoom Speed	<7 s
Field of View	H: 62.32°–1.71° V: 36.55°–1.0°
Close Focus Distance	0.5 m–2 m (1.64 ft–6.56 ft)
Optical Zoom	45×
Aperture	F1.4–F4.5
Illuminator On/Off Control	Auto/Manual
Illumination Distance	150 m (492.13 ft)

Audio and Video

Video Compression	H.265; H.264; H.264H
Resolution	Thermal: Main stream: 1280 × 1024; 1280 × 960 ; 720p (1280 × 720); 400 × 300; 1280 × 960 (default) Sub stream: 640 × 512; 640 × 480; 400 × 300; 400 × 300 (default) Visible: Main stream: 4 MP (2688 × 1520); 4 MP (2560 × 1440); 1080p (1920 × 1080); 720p (1280 × 720); D1 (704 × 576); 1080p (default) Sub stream: D1 (704 × 576); CIF (352 × 288); D1 (704 × 576) (default)
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; AAC
Image Encoding Format	JPEG

PTZ

Pan/Tilt Range	Pan: 0° to +360° Tilt: −27° to +90°
Manual Control Speed	Pan: 0.1°/s to 200°/s Tilt: 0.1°/s to 120°/s
Preset Speed	Pan: 0.1°/s to 240°/s Tilt: 0.1°/s to 200°/s
Preset	300
Tour	8 (up to 32 presets per tour)
Pattern	5
Scan	5
Power-off Memory	Yes
Privacy Masking	4 by default
Idle Motion	Preset; Pattern; Tour; Scan; Horizontal Rotation
Timing Task	Preset; Pattern; Tour; Scan; Horizontal Rotation
Position Display	On/Off
Wiper	Auto rain-sensing. Supports setting wiper running times, frequency, and period.
3D Positioning	Yes

Function

Two-way Audio	Yes
Network Protocol	HTTPS; HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP
Region of Interest (RoI)	Yes (customizable)
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

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Malfunction Detection	Network disconnection detection; IP conflict detection; memory card state detection; memory space detection
PIP	Yes

Intelligence

Heat Detection	Yes
Cold/Hot Spot Trace	Yes
IVS (Perimeter Protection)	Yes. Supports tripwire and intrusion.
Target Distinction	Human/Vehicle Classification
Target Tracking	Yes
Target Filtering	Yes
Smoking Detection	Yes
Call Detection	Yes
Smoke Detection	Yes
Boat Detection	Yes
Engineering Truck Detection	Yes
Panoramic PTZ	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 ± 25%
Power Consumption	Basic: 30 W Max: 50 W (illuminator)

Environment

Operating Temperature	−40 °C to +70 °C (−40 °F to +158 °F)
Operating Humidity	≤95%
Storage Temperature	−50 °C to +80 °C (−58 °F to +176 °F)

Physical Characteristics

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

Structure

Product Dimensions	300 mm × 300 mm × 500 mm (11.81" × 11.81" × 19.69") (L × W × H)
Packaging Dimensions	435 mm × 435 mm × 666 mm (17.13" × 17.13" × 26.22") (L × W × H)

Net Weight	≤13 kg (28.66 lb)
Gross Weight	≤16 kg (35.27 lb)

Heat Detection Distance

Focal Length	Max. Distance
25 mm	1,548 m (5,078.74 ft)
35 mm	2,167 m (7,109.58 ft)
50 mm	3,096 m (10,127.48 ft)

Note:
The table displays the measured distances obtained from using the target size 2 m × 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 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	Model	Description
Thermal Camera	DHI-TPC-SD8441B-B25Z45-BM-S22	Thermal: 25 mm; Visible: 5.5 mm–248 mm
	DHI-TPC-SD8441B-B35Z45-BM-S22	Thermal: 35 mm; Visible: 5.5 mm-248 mm
	DHI-TPC-SD8441B-B50Z45-BM-S22	Thermal: 50 mm; Visible: 5.5 mm–248 mm
Accessories	36 V/2.23 A	Power Supply
	10 A/250 V	Power Cord
	C80010-00	Mount Adapter
	C80010-00 + PFB7320W	Wall Mount Bracket
	C80010-00 + PFB710C	Ceiling Mount Bracket
	PFB7320W + PFA153 + C80010-00	Pole Mount Bracket + Wall Mount Bracket (Pole Mount) (Vertical)

Accessories

Included:

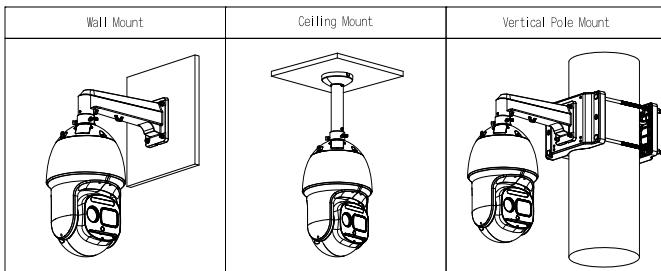|		
36 V/2.23 A Power Supply	10 A/250 V Power Cord	C80010-00 Mount Adapter

Optional:

C80010-00 + PFB7320W Wall Mount Bracket	C80010-00 + PFB710C Ceiling Mount Bracket	PFB7320W + PFA153 + C80010-00 Pole Mount Bracket + Wall Mount Bracket (Pole Mount) (Vertical)

Wall Mount	Ceiling Mount	Vertical Pole Mount

Dimensions (mm[inch])

507.3 [19.97]

262.5 [10.34]

Φ300.0 [Φ11.81]

236.6 [9.32]

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