DAHUA
TECHNOLOGY

DHI-TPC-SD8441B

Thermal Network Hybrid Speed Dome Camera

· Vanadium oxide uncooled focal plane detector.

· 1/1.8" 4 megapixel progressive scan CMOS

· Visible lens offers 45× optical zoom.

· Offers various AI functions such as boat, engineering truck and heat detection, tripwire, intrusion, target filtering, and alarm linkage such as email alarm and external alarm.

· Faster and more precise when locating and capturing targets in light of the three dimensional positioning function.

· Auto rain-sensing for a clear view and a longer service life of the wiper.

· SD card storage and automatic network replenishment.

· IR illumination distance: 150m.

· 7/2 Alarm in/out.

System Overview

Thermal Network Hybrid Speed Dome Camera provides an all-in-one solution for video monitoring whether day or night. It has 18 different kinds of thermal pseudo-color modes. It also offers tripwire, intrusion, and multiple types of intelligence.

Scene

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

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.

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.

Environment (–40 °C to +70 °C)
Developed to operate in extreme conditions, the camera can function in temperatures ranging from –40 °C to +70 °C (–40 °F to +158 °F). It was subjected to rigorous dust and water immersion tests, gaining its IP66 certification, making it suitable for demanding outdoor applications. For environments with rain, sleet, snow and fog, an integrated wiper (optional) provides users with clear visibility at all times.

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: 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: 1,471 m (4,826.12 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 (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)

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

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/5A ± 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	25 mm	35 mm	50 mm
Heat Detection Distance (Recommended)	774 m (2,539.37 ft)	1,084 m (3,556.43 ft)	1,548 m (5,078.74 ft)
Heat Detection Distance (Max.)	1,548 m (5,078.74 ft)	2,167 m (7,109.58 ft)	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

Focal Length	25 mm	35 mm	50 mm
Perimeter Protection Distance (Human)	141 m (462.60 ft)	198 m (649.61 ft)	283 m (928.48 ft)
Perimeter Protection Distance (Vehicle)	396 m (1,299.21 ft)	554 m (1,817.59 ft)	792 m (2,391.73 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-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 + PFB710W	Wall Mount Bracket
	C80010-00 + PFB710C	Ceiling Mount Bracket
	PFB710W + 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
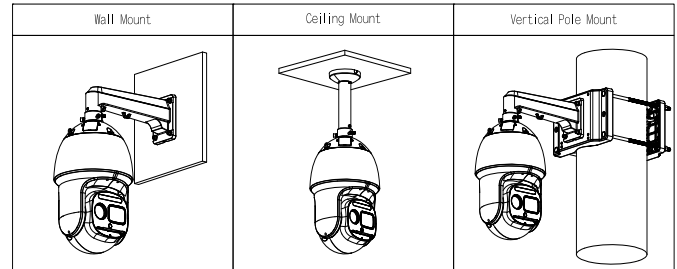Mount Adapter

Optional:

C80010-00 + PFB710W
Wall Mount
Bracket

C80010-00 + PFB710C
Ceiling Mount
Bracket

PFB710W + 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]