

DHI-TPC-SD5641

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

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|-----------------------------------|---|
| Detector Type | Vanadium oxide uncooled focal plane detector |
| Effective Pixels | 640 (H) × 512 (V) |
| Pixel Pitch | 12 μm |
| Spectral Range | 8 μm–14 μm |
| Sensitivity (NETD) | ≤35 mK (@f/1.0) |
| Focal Length | 19 mm; 25 mm; 35 mm; 50 mm |
| Field of View | 19 mm: H: 23.3°; V: 18.6° 25 mm: H: 18.6°; V: 14.8° 35 mm: H: 12.6°; V: 10.1° 50 mm: H: 9.2°; V: 7.3° |
| Thermal Focus Control | Fixed-focal |
| Detection Distance ^① | 19 mm: Vehicle: 2,436 m (7,992.13 ft); Human: 792 m (2,598.43 ft) 25 mm: Vehicle: 3,205 m (10,515.09 ft); Human: 1,042 m (3,418.64 ft) 35 mm: Vehicle: 4,487 m (14,721.13 ft); Human: 1,458 m (4,783.46 ft) 50 mm: Vehicle: 6,410 m (21,030.18 ft); Human: 2,083 m (6,833.99 ft) |
| Recognition Distance ^② | 19 mm: Vehicle: 598 m (1,961.94 ft); Human: 204 m (669.29 ft) 25 mm: Vehicle: 786 m (2,578.74 ft); Human: 268 m (879.27 ft) 35 mm: Vehicle: 1,101 m (3,612.2 ft); Human: 375 m (1,230.31 ft) 50 mm: Vehicle: 1,572 m (5,157.48 ft); Human: 536 m (1,758.53 ft) |

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| Identification Distance ^③ | 19 mm: Vehicle: 302 m (990.81 ft); Human: 102 m (334.65 ft) 25 mm: Vehicle: 397 m (1,302.49 ft); Human: 134 m (439.63 ft) 35 mm: Vehicle: 556 m (1,824.15 ft); Human: 188 m (616.80 ft) 50 mm: Vehicle: 794 m (2,457.35 ft); Human: 268 m (879.27 ft) |
| Note: | <ol style="list-style-type: none"> 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 |
| 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) |
| Visible | |
| Image Sensor | 1/2.8" CMOS |

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| Max. Resolution | 2688 (H) × 1520 (V) |
| Pixel | 4 MP |
| Horizontal Definition | Center ≥ 1200 TVL Edge ≥ 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 | >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

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| 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–50 fps adjustable, 50 fps by default; (sub stream) 1 fps–25 fps adjustable, 15 fps by default 60 Hz: (main stream) 1 fps–60 fps adjustable, 60 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 |

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| Audio Compression | G.711a; G.711mu |
| Image Encoding Format | JPEG |

PTZ

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| 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 | 200 |
| Tour | 8 (up to 32 presets per tour) |
| Pattern | 5 |
| Scan | 2 |
| Power-off Memory | Yes |
| Privacy Masking | 4 areas in the same view |
| Idle Motion | Preset; auto pattern; auto tour; pan; progressive scan |

Function

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| 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

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

Port

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

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| Alarm Output | 2 |
| Audio Input | 1 |
| Audio Output | 1 |
| RS-485 | 1 |

Power

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| 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

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|-----------------------|--------------------------------------|
| 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

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

Structure

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| 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 |
|--------------|-----------------------|
| 19 mm | 1,140 m (3,740.16 ft) |
| 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 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) |
|--------------|---------------------|-----------------------|
| 19 mm | 133 m (436.35 ft) | 399 m (1,309.06 ft) |
| 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-SD5641-B19Z45-DC-S24 | Thermal: 19 mm; Visible: 3.95 mm-177.75 mm |
| | DHI-TPC-SD5641-B25Z45-DC-S24 | Thermal: 25 mm; Visible: 3.95 mm-177.75 mm |
| | DHI-TPC-SD5641-B35Z45-DC-S24 | Thermal: 35 mm; Visible: 3.95 mm-177.75 mm |
| | DHI-TPC-SD5641-B50Z45-DC-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



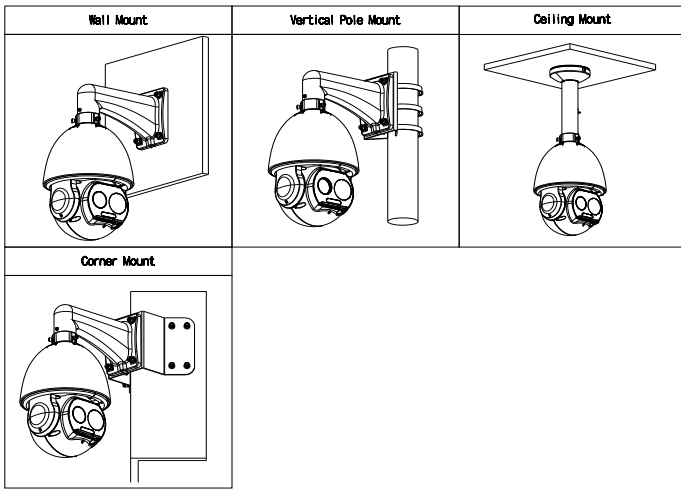
PFB303W + PFA120 +
PFA150
Vertical Pole Mount
Bracket



PFB300C
Ceiling Mount
Bracket



PFB303W + PFA120 +
PFA151
Corner Mount Bracket



Dimensions (mm[inch])

