

# 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: -27° to +90°.
- Maximum IR illumination distance is 150 m.
- Auto rain-sensing wiper.
- 24–57 VDC.
- 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                          | 12 μm  |
| Spectral Range                       | 8 μm–14 μm   |
| Sensitivity (NETD)                   | <35 mK (@f/1.0)  |
| Focal Length                         | 25 mm; 50 mm   |
| Field of View                        | 25 mm: H: 11.0°; V: 8.2°<br>50 mm: H: 5.5°; V: 4.1°  |
| Thermal Focus Control                | Fixed-focal  |
| Close Focus Distance                 | 25 mm: 1 m (3.28 ft)<br>50 mm: 1 m (3.28 ft)   |
| Detection Distance <sup>①</sup>      | 25 mm: Vehicle: 3,205 m (10,515.09 ft);<br>Human: 1,041 m (3,415.35 ft)<br>50 mm: Vehicle: 6,410 m (21,030.18 ft);<br>Human: 2,083 m (6,833.99 ft) |
| Recognition Distance <sup>②</sup>    | 25 mm: Vehicle: 786 m (2,578.74 ft);<br>Human: 268 m (879.27 ft)<br>50 mm: Vehicle: 1,572 m (5,157.48 ft);<br>Human: 536 m (1,758.53 ft)           |
| Identification Distance <sup>③</sup> | 25 mm: Vehicle: 397 m (1,302.49 ft);<br>Human: 134 m (439.63 ft)<br>50 mm: Vehicle: 794 m (2,604.99 ft);<br>Human: 268 m (879.27 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       | Center ≥ 1200 TVL<br>Edge ≥ 900 TVL  |
| Min. Illumination           | Color: 0.001 lux@F1.4<br>Black & white: 0.0001 lux@F1.4<br>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                       | Optical defog  |
| Visible Image Stabilization | Optical 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               | 6 mm–336 mm                       |
| Zoom Speed                 | <8.8 s                            |
| Field of View              | H: 64.4°–1.28°<br>V: 38.37°–0.72° |
| Close Focus Distance       | 0.1 m–5 m (0.33 ft–16.4 ft)       |
| Optical Zoom               | 56×                               |
| Aperture                   | F1.5–F5.3                         |
| Illuminator On/Off Control | Auto/Manual                       |
| Illumination Distance      | 150 m (492.13 ft)                 |

### Audio and Video

|                       |   |
|-----------------------|---|
| Video Compression     | H.265; H.264M; H.264H; H.264B; MJPEG  |
| Resolution            | Thermal:<br>Main stream: 1280 × 1024; 1280 × 960; 1280 × 720; 400 × 300; 1280 × 960 (default);<br>Sub stream: 640 × 512; 640 × 480; 400 × 300; 400 × 300 (default);<br>Visible:<br>Main stream: 4M (2688 × 1520); 2M (1920 × 1080); 720p (1280 × 720); D1 (704 × 576); 4M (2688 × 1520) (default);<br>Sub stream: D1 (704 × 576); CIF (352 × 288); CIF (352 × 288) (default);   |
| Video Frame Rate      | Thermal (50 Hz):<br>Main stream: 1 fps–50 fps, 50 fps by default Sub stream: 1 fps–25 fps, 15 fps by default<br>Visible (50 Hz):<br>Main stream: 1 fps–25 fps, 25 fps by default Sub stream: 1 fps–25 fps, 15 fps by default<br>Thermal (60 Hz):<br>Main stream: 1 fps–60 fps, 60 fps by default Sub stream: 1 fps–30 fps, 15 fps by default<br>Visible (60 Hz): Main stream: 1 fps–30 fps, 30 fps by default Sub stream: 1 fps–30 fps, 15 fps by default |
| Audio Compression     | G.711a; G.711mu; PCM  |
| Image Encoding Format | JPEG  |

### PTZ

|                      |   |
|----------------------|---|
| Pan/Tilt Range       | Pan: 0° to +360°<br>Tilt: –27° to +90°          |
| Manual Control Speed | Pan: 0.1°/s to 200°/s<br>Tilt: 0.1°/s to 120°/s |
| Preset Speed         | Pan: 0.1°/s to 240°/s<br>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; pan; scan  |
| Timing Task      | Preset; pattern; tour; pan; scan  |
| 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         | IPv4/IPv6; HTTP; HTTPS; 802.1x; Qos; FTP; SMTP; UPnP; SNMP; DNS; DDNS; NTP; RTSP; RTP; TCP; UDP; IGMP; ICMP; DHCP; PPPoE; ONVIF |
| Region of Interest (RoI) | Yes (customizable)  |
| Storage                  | FTP; Micro SD card (optional)   |
| Micro SD Card (Max.)     | 512 GB  |
| Interoperability         | ONVIF; CGI  |
| Browser                  | IE: IE8 and later<br>Chrome: 42 and earlier<br>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                                   |
| Smoke Detection             | Yes                                   |
| Boat Detection              | Yes                                   |
| Engineering Truck Detection | Yes                                   |
| Panoramic PTZ               | Yes                                   |

### Port

|               |                                       |
|---------------|---------------------------------------|
| Analog Output | 1.0V[p-p]/75 Ω; PAL or NTSC; 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      | 24–57 VDC                              |
| Power Consumption | Basic: 30 W<br>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<br>Air discharge: 15 kV<br>Contact discharge: 8 kV |

### Structure

|                      |  |
|----------------------|--|
| Product Dimensions   | 300 mm × 300 mm × 500 mm (11.81" × 11.81" × 19.69")<br>(L × W × H) |
| Packaging Dimensions | 435 mm × 435 mm × 666 mm (17.13" × 17.13" × 26.22")<br>(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        | 1,500 m (4,921.26 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)    |
|--------------|---------------------|-----------------------|
| 25 mm        | 175 m (574.15 ft)   | 525 m (1,722.44 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-B25Z56-DC-S22-V3                                | Thermal: 25 mm;<br>Visible: 6 mm–336 mm |
|                               | DHI-TPC-SD8441B-B50Z56-DC-S22-V3                                | Thermal: 50 mm;<br>Visible: 6 mm–336 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:



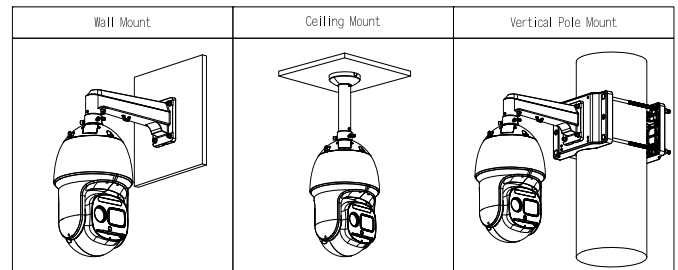
C80010-00 + PFB7320W  
Wall Mount  
Bracket



C80010-00 + PFB710C  
Ceiling Mount  
Bracket



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



Dimensions (mm[inch])

