

DHI-TPC-PT8641G

Thermal Network Multi-spectral Pan & Tilt Camera



- Vanadium oxide uncooled focal plane detector.
- 4 Megapixel progressive scan CMOS.
- Visible lens offers 56× optical zoom.
- AI functions: heat detection, smoke detection, tripwire, intrusion, boat detection, and human/vehicle classification.
- Pan: 0° to 360° endless, tilt: -45° to +90°.
- Optical defog/Electronic defog and Optical Image Stabilization (OIS).
- Auto rain-sensing wiper.
- Maximum laser illumination distance is 2,000 m.
- Maximum laser ranging distance is 2,000 m.
- Wide input voltage 24–57 VDC.
- 12 VDC power out.
- GPS/BDS.
- Supports gradienter.
- IP66 rated.

Featuring thermal and visible channels, Thermal Network Multi-spectral Pan & Tilt Camera offers various AI functions such as heat detection, smoke detection, tripwire, intrusion, human/vehicle classification and boat detection. The camera has flexible configuration with the laser illuminator and laser ranging optional. It is widely applied in outdoor scenes of the long-distance perimeter protection and heat detection.

Technical Specification

Thermal

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)	≤20 mK
Focal Length	75 mm; 100 mm; 13 mm-130 mm
Field of View	75 mm: H: 5.86°; V: 4.69° 100 mm: H: 4.40°; V: 3.52° 13 mm-130 mm: H: 34.3°–3.4°; V: 27.3°–2.7°
Focus Control	Manual; Auto; Semi-auto
Digital Detail Enhancement (DDE)	Yes
Digital Zoom	24 levels
Image Stabilization	Electronic Image Stabilization (EIS)
AGC	Auto; Manual
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	1/1.8" CMOS
Max. Resolution	2688 (H) × 1520 (V)
Pixel	4 MP
Min. Illumination	Color: 0.005 lux Black & white: 0.0005 lux 0 lux (IR on)
AGC	Auto; Manual
Noise Reduction	2D NR; 3D NR
S/N Ratio	>55 dB
White Balance	Auto; manual; indoor; outdoor; tracking; sodium lamp; street lamp; natural
Image Stabilization	Optical Image Stabilization
Electronic Shutter Speed	1 s–1/30,000 s (auto/manual)
BLC	Yes
WDR	DWDR
HLC	Yes
Digital Zoom	16×
Day/Night	Auto (ICR), Color; B/W, Auto (ICR); Color; B/W
Image Flip	180°
Exposure Compensation	Yes

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° 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

Audio and Video

Video Compression	H.265; H.264; H.264H; H.264B; MJPEG
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; 1920×1080; 1280×720; 704× 576; 2688 × 1520 (default) Sub stream: 704 × 576; 352 × 288; 704 × 576 (default)
Video Frame Rate	Thermal (50 Hz): Main stream: 1 fps–25 fps, 25 fps by default; Sub stream: 1 fps–25 fps, 15 fps by default; Visible (50 Hz): Main stream: 1 fps–25 fps, 25 fps by default; Sub stream: 1 fps–25 fps, 15 fps by default; Thermal (60 Hz): Main stream: 1 fps–30 fps, 30 fps by default; Sub stream: 1 fps–30 fps, 15 fps by default; Visible (60 Hz): Main stream: 1 fps–30 fps, 30 fps by default; Sub stream: 1 fps–30 fps, 15 fps by default
Audio Encoding	G.711a; G.711mu; PCM
Image Encoding Format	JPEG

PTZ

Pan/Tilt Range	Pan: 0° to 360° endless Tilt: –45° to +90°
Manual Control Speed	Pan: 0.1°/s–140°/s Tilt: 0.1°/s–50°/s
Preset Speed	Pan: 0.1°/s–140°/s Tilt: 0.1°/s–50°/s
Preset	300
Tour	8 (up to 32 presets per tour)
Pattern	5
Scan	5
Power-off Memory	Yes
Privacy Masking	4 blocks
Idle Motion	Preset; pattern; tour; scan; pan
Timing Task	Preset; pattern; tour; scan; pan
Position Display	ON/OFF
Preset Video Freeze	Yes
Telephoto Speed Limit	Yes
Positioning Accuracy	± 0.1°

Wiper	Manual/Auto. Supports setting wiper running times, frequency, and period
3D Positioning	Yes

Laser Illumination

Laser Illumination Distance	1,000 m (3,280.84 ft); 2,000 m (6,561.68 ft)
Laser Illuminator On/Off Control	Manual
Angle of Laser Illuminator	1,000 m: 2°–70° adjustable; 2,000 m: 0.56°–45° adjustable

Laser Range Finder

Laser Range Finder Distance	1,000 m (3,280.84 ft); 2,000 m (6,561.68 ft)
Laser Range Finder Accuracy	400 m: ±1.5 m (4.92 ft); >400 m: ±0.4%

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	FTP; Micro SD card (optional)
Interoperability	ONVIF; CGI; DaHuaSDK
Browser	IE: IE8 and later (includes the browsers with IE kernel, such as 360 Explorer, Sougou Explorer) Chrome: 42 and earlier Firefox: 42 and earlier
User/Host	Up to 10
Security	Authorized username and password; attached MAC address; 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
Perimeter Protection	Yes. Supports tripwire and intrusion.
Target Distinction	Human/Vehicle Classification
Target Filtering	Yes (by pixel)
Target Tracking	Yes (manual tracking and alarm tracking)
Smoke Detection	Yes
Boat Detection	Yes

Port

Analog Output	1 × CVBS output; BNC port
Network Port	1 × RJ-45 (10/100 Base-T)
Alarm Input	7
Alarm Output	2

Alarm Event	No SD card; low SD card space; SD card error; network disconnection; IP conflict; motion detection; video tampering; intrusion; tripwire; audio detection; defocus on thermal channel
Audio Input	1
Audio Output	1
RS-485	1

Power

Power Supply	24–57 VDC
Power Consumption	Basic 1: 27 W (PTZ stationary; only supports live video) Basic 2: 40 W (PTZ in motion; only supports live video) Max 1: 77 W (PTZ in motion; all functions enabled; illuminator on, laser range finder on; heater off) Max 2: 112 W (PTZ in motion; all functions enabled; illuminator on, laser range finder on; heater on)
Power Output	12 VDC; 1 A

Environment

Operating Temperature	–40 °C to +70 °C (–40 °F to +158 °F)
Operating Humidity	≤95%
Storage Temperature	–40 °C to +70 °C (32 °F to +158 °F)

Physical Characteristics

Protection	IP66
Reliability	Surge protection: 6 kV Contact discharge: 8 kV Air discharge: 15 kV
Anti-corrosion Level	Basic Protection *The products are designed for general use in areas that have no specific requirements for anti-corrosion protection.
Product Dimensions	585.9 mm × 299.7 mm × 483.4 mm (23.07" × 11.8" × 19.03") (L × W × H)
Packaging Dimensions	765.0 mm × 715.0 mm × 600.0 mm (30.12" × 28.15" × 23.62") (L × W × H)
Net Weight	≤26 kg (57.32 ft)
Gross Weight	≤50 kg (110.23 ft)
Installation	Plane mount
Power Adapter	Included
Lens	Included
PTZ Outlet	Side

Certification

Certifications	CE
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Heat Detection Distance

Focal Length	Max. Distance
75 mm	6,000 m (19,685.04 ft)
100 mm	8,000 m (26,246.72 ft)
13 mm–130 mm	10,400 m (34,120.73 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 (IVS Distance)

Focal Length	Distance (Vehicle)	Distance (Human)
75 mm	1,575 m (5,167.32 ft)	525 m (1,722.44 ft)
100 mm	2,100 m (6,889.76 ft)	700 m (2,296.59 ft)
13 mm–130 mm	2,730 m (8,956.69 ft)	910 m (2,985.56 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.

DRI Distance

Focal Length	Detection Distance ^①	Recognition Distance ^②	Identification Distance ^③
75 mm	Vehicle: 9,583 m (31,440.29 ft); Human: 3,125 m (10,252.62 ft)	Vehicle: 2,396 m (7,860.89 ft); Human: 781 m (2,562.34 ft)	Vehicle: 1,198 m (3,930.45 ft); Human: 391 m (1,282.81 ft)
100 mm	Vehicle: 12,778 m (41,922.57 ft); Human: 4,167 m (13,671.26 ft)	Vehicle: 3,194 m (10,150.92 ft); Human: 1,042 m (3,418.64 ft)	Vehicle: 1,597 m (5,239.50 ft); Human: 521 m (1,709.32 ft)
13 mm–130 mm	Vehicle: 16,611 m (54,498.03 ft); Human: 5,417 m (17,772.31 ft)	Vehicle: 4,153 m (13,625.33 ft); Human: 1,354 m (4,442.26 ft)	Vehicle: 2,076 m (6,811.02 ft); Human: 677 m (2,221.13 ft)

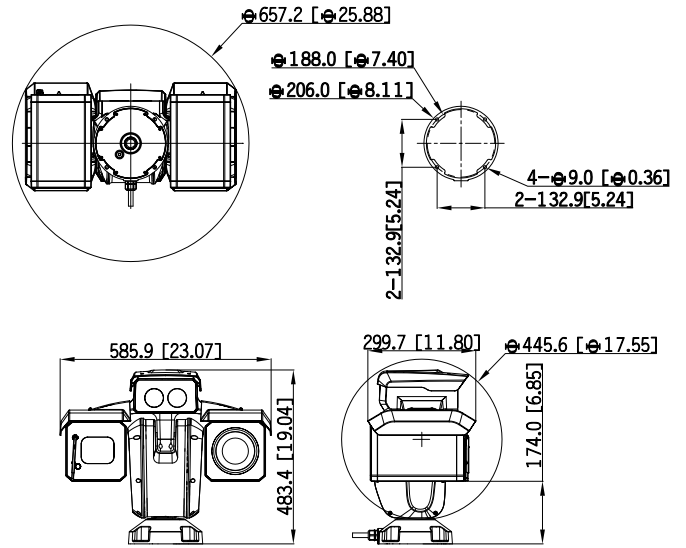
- ① Detection Distance: Detects objects, but cannot recognize their characteristics (objects must cover more than 1.5 pixels of the image).
- ② Recognition Distance: Classifies objects into general categories, such as human, vehicle (the object must cover more than 6 pixels of the image).
- ③ Identification Distance: Classifies objects into specific categories based on their characteristics, such as engineering truck, car (the object must cover more than 12 pixels of the image).

Note:
The table is the standard theoretical calculation and is for reference only. The distances within it are subject to actual conditions including atmospheric conditions, target size, the installation site, and more. For the intelligent detection distance, refer to the table of Perimeter Protection Distance (IVS Distance) above.

Ordering Information

Type	Model	Description
Security	DHI-TPC-PT8641G-BM75Z56L-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 75 mm; Laser Illumination distance: 1,000 m
	DHI-TPC-PT8641G-BM100Z56L-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 100 mm; Laser Illumination distance: 1,000 m
	DHI-TPC-PT8641G-BM100Z56LR-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 100 mm; Laser Illumination distance: 1,000 m; Laser Range Finder distance: 1,000 m
	DHI-TPC-PT8641G-BM100Z56L2-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 100 mm; Laser Illumination distance: 2,000 m
	DHI-TPC-PT8641G-BM100Z56L2R2-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 100 mm; Laser Illumination distance: 2,000 m; Laser Range Finder distance: 2,000 m
	DHI-TPC-PT8641G-B13130Z56L-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 13 mm–130 mm; Laser Illumination distance: 1,000 m
	DHI-TPC-PT8641G-B13130Z56L2-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 13 mm–130 mm; Laser Illumination distance: 2,000 m
	DHI-TPC-PT8641G-B13130Z56L2R2-DC-S53-V2	Visible Focal Length: 6 mm–336 mm; Thermal Focal Length: 13 mm–130 mm; Laser Illumination distance: 2,000 m; Laser Range Finder distance: 2,000 m

Dimensions (mm[inch])



Installation

