

DHI-TPC-PTD8641

Multi-Spectral Surveillance System



- Vanadium oxide uncooled focal plane detector.
- Zoom thermal lens.
- 4Megapixel progressive scan CMOS.
- Visible lens offers 86× optical zoom.
- Pan: 0° to 360°, tilt: -45° to +85°.
- AI functions: boat detection, boat tracking, heat detection, tripwire, intrusion, and human/vehicle classification.
- Maximum laser illumination distance is 3,000 m.
- Inflation inlet for inert gases such as nitrogen gas.
- IP66 rated.
- Anti-corrosion, NEMA-4X Standard.

Featuring thermal and visible channels, Multi-Spectral Surveillance System offers various AI functions such as tripwire, intrusion, target tracking, heat detection and smoke detection. With the spherical wind resistance design and anti-corrosion coating, It is widely applied to long range perimeter protection scenes with harsh conditions like coastal area, port and airport.

Technical Specification

Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Effective Pixels	640 (H) × 512 (V)
Pixel Pitch	17 μm
Spectral Range	8 μm–14 μm
Sensitivity (NETD)	<35 mK (@f/1.0)
Focal Length	30 mm–150 mm; 38 mm–190 mm; 23 mm–230 mm; 30 mm–300 mm
Field of View	30 mm–150 mm: H: 20.6°–4.2°; V: 16.5°–3.3° 38 mm–190 mm: H: 16.7°–3.5°; V: 12.5°–2.6° 23 mm–230 mm: H: 26.6°–2.7°; V: 21.4°–2.2° 30 mm–300 mm: H: 20.6°–2.08°; V: 16.5°–1.66°
Thermal Focus Control	Manual/Auto/Semi-auto
Close Focus Distance	30 mm–150 mm: 5 m (16.40 ft) 38 mm–190 mm: 2 m (6.56 ft) 23 mm–230 mm: 5 m (16.40 ft) 30 mm–300 mm: 5 m (16.40 ft)
Detection Distance ^①	30 mm–150 mm: Vehicle: 13,575 m (44,537.40 ft); Human: 4,412 m (14,475.07 ft) 38 mm–190 mm: Vehicle: 17,195 m (56,414.04 ft); Human: 5,588 m (18,333.33 ft) 23 mm–230 mm: Vehicle: 20,815 m (68,290.68 ft); Human: 6,765 m (22,194.88 ft) 30 mm–300 mm: Vehicle: 27,149 m (89,071.52 ft); Human: 8,824 m (28,950.13 ft)
Recognition Distance ^②	30 mm–150 mm: Vehicle: 3,330 m (10,925.20 ft); Human: 1,135 m (3,723.75 ft) 38 mm–190 mm: Vehicle: 4,218 m (13,838.58 ft); Human: 1,437 m (4,714.57 ft) 23 mm–230 mm: Vehicle: 5,105 m (16,748.69 ft); Human: 1,740 m (4,714.57 ft) 30 mm–300 mm: Vehicle: 6,659 m (21,838.58 ft); Human: 2,269 m (7,444.83 ft)

Identification Distance ^③	30 mm–150 mm: Vehicle: 1,681 m (5,515.09 ft); Human: 567 m (1,860.24 ft) 38 mm–190 mm: Vehicle: 2,129 m (6,984.91 ft); Human: 718 m (2,355.64 ft) 23 mm–230 mm: Vehicle: 2,577 m (8,454.72 ft); Human: 870 m (2,854.33 ft) 30 mm–300 mm: Vehicle: 4,762 m (15,623.36 ft); Human: 1,607 m (5,272.31 ft)
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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
Thermal Image Stabilization	Electronic Image Stabilization (EIS)
Digital Zoom	24 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	1/1.8" CMOS
Max. Resolution	2688 (H) × 1520 (V)

Pixel	4 MP
Horizontal Definition	10 mm–600 mm: Center ≥ 1200 TVL; Edge ≥ 900 TVL 10 mm–860 mm: Center ≥ 1100 TVL; Edge ≥ 900 TVL
Min. Illumination	10 mm–600 mm: Color: 0.001 Lux@F1.8 Black & white: 0.0001 Lux@F1.8 0 lux (IR on) 10 mm–860 mm: Color: 0.001 Lux@F3.6 Black & white: 0.0001 Lux@F3.6 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	10 mm–600 mm: Electronic Image Stabilization (EIS) 10 mm–860 mm: Optical Image Stabilization (OIS)
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	Manual/Auto
Image Flip	180°
Exposure Compensation	Yes
Visible Focus Control	Auto/Semi-auto/Manual
Focal Length	10 mm–600 mm; 10 mm–860 mm
Field of View	10 mm–600 mm: H: 41.2°–1.2°; V: 22.6°–0.7° 10 mm–860 mm: H: 41.2°–0.52°; V: 22.6°–0.29°
Close Focus Distance	10 mm–600 mm: 1.5 m (4.92 ft) 10 mm–860 mm: 1.5 m–5 m (4.92 ft–16.4 ft)

Audio and Video

Video Compression	H.265; H.264M; H.264H
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; 2560 × 1440; 1920 × 1080; 1280 × 720; 704 × 576; 352 × 288; 2688 × 1520 (default) Sub stream: 1280 × 720; 704 × 576; 352 × 288; 352 × 288 (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 Compression	G.711a; G.711mu; PCM

Image Encoding Format	JPEG
PTZ	
Pan/Tilt Range	Pan: 0° to 360° endless Tilt: –45° to +85°
Manual Control Speed	Pan: 0.01°/s–120°/s Tilt: 0.01°/s–80°/s
Preset Speed	Pan: 0.01°/s–120°/s Tilt: 0.01°/s–80°/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

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 (128 G)
Micro SD Card (Max.)	512 GB
Interoperability	ONVIF; CGI; Dahua SDK
Browser	IE: IE8 and later (including the browsers with IE kernel, such as 360 Explorer, Sougou Explorer) Chrome: 42 and earlier Firefox: 42 and earlier
User/Host	Up to 12 (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)
Laser Illumination	3,000 m (9,842.52 ft)
Angle of Laser Illuminator	0.4°–30° adjustable

Intelligence

Heat Detection	Yes
Cold/Hot Spot Trace	Yes
IVS (Perimeter Protection)	Yes. Supports tripwire and intrusion.
Target Distinction	Yes
Port	
Analog Output	1 × CVBS output; BNC port

Network Port	1 × RJ-45 (10/100 Base-T)
Alarm Input	7 (bare wire)
Alarm Output	2 (bare wire)
Audio Input	1 (LINE IN, RCA port)
Audio Output	1 (LINE OUT, RCA port)
RS-485	1 (bare wire)

Power

Power Supply	Wide input voltage 36–57 VDC
Power Consumption	Basic: 55.45 W Max: 58.32 W (illuminator off, heater off); 119.54 W (illuminator on, heater off); 529.34 W (illuminator on, heater on)

Environment

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

Physical Characteristics

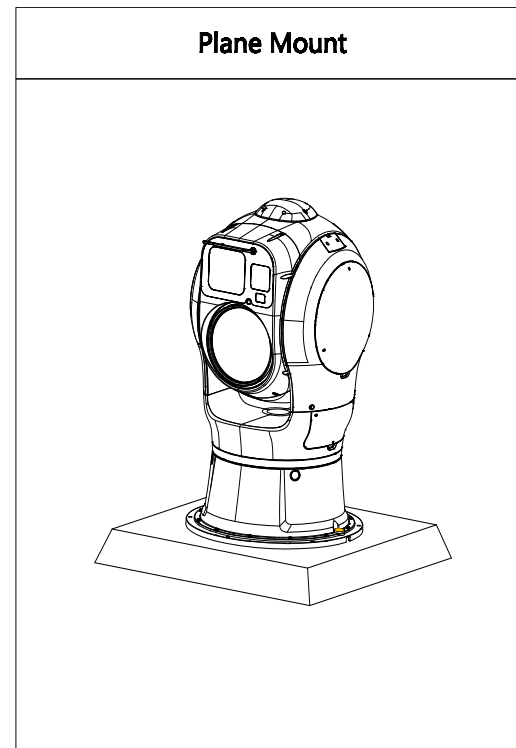
Protection	Dome compartment: IP67 PTZ: IP66
Reliability	Surge protection: 6 kV Contact discharge of 6 kV Air discharge of 8 kV

Structure

Product Dimensions	Φ570 mm × 977.1 mm (Φ22.44" × 38.47")
Packaging Dimensions	784 mm × 784 mm × 1,372 mm (30.87" × 30.87" × 54.02") (L × W × H)
Net Weight	38 mm–190 mm: ≤109 kg (240.30 lb) 30 mm–150 mm: ≤109 kg (240.30 lb) 23 mm–230 mm: ≤109 kg (240.30 lb) 30 mm–300 mm: ≤113 kg (249.12 lb)
Gross Weight	≤200 kg (440.92 lb)

Ordering Information

Type	Model	Description
Thermal Camera	DHI-TPC-PTD8641-B38190Z86L3-BM-S53	Thermal: 38 mm–190 mm; Visible: 10 mm–860 mm
	DHI-TPC-PTD8641-B30150Z60L3-BM-S53	Thermal: 30 mm–150 mm; Visible: 10 mm–600 mm
	DHI-TPC-PTD8641-B23230Z86L3-BM-S53	Thermal: 23 mm–230 mm; Visible: 10 mm–860 mm
	DHI-TPC-PTD8641-B30300Z86L3-BM-S53	Thermal: 30 mm–300 mm; Visible: 10 mm–860 mm



Dimensions (mm[inch])

