

DHI-TPC-PTD8A4C

Multi-Spectral Surveillance System



- Vanadium oxide uncooled focal plane detector.
- Zoom thermal and visible lens.
- 4Megapixel progressive scan CMOS.
- 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.
- Ethernet port and fiber port communication.
- Remote power on/off.
- Motor block alarm.

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	1280 (H) × 1024 (V)
Pixel Pitch	12 μm
Spectral Range	8 μm–14 μm
Sensitivity (NETD)	<25 mK (@f/1.0)
Focal Length	23 mm–230 mm; 30 mm–300 mm
Field of View	23 mm–230 mm: H: 36.93°–3.82°; V: 29.91°–3.06° 30 mm–300 mm: H: 28.72°–2.93°; V: 23.15°–2.35°
Thermal Focus Control	Manual/Auto/Semi-auto
Close Focus Distance	23 mm–230 mm: 4 m (13.12 ft) 30 mm–300 mm: 5 m (16.40 ft)
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	Channel 1: 1/1.8" CMOS Channel 2: 1/1.8" CMOS
Max. Resolution	Channel 1: 2688 (H) × 1520 (V) Channel 2: 3840 (H) × 2160 (V)
Pixel	Channel 1: 4 MP Channel 2: 8 MP
Horizontal Definition	Z86: Center ≥ 1200 TVL Edge ≥ 900 TVL Z120: Center ≥ 1100 TVL Edge ≥ 900 TVL
Min. Illumination	Z86: Channel 1: Color: 0.002 lux@F2.8; Black & white: 0.002 lux@F2.8; 0 lux (IR on) Channel 2: Color: 0.001 lux@F1.0; Black & white: 0.0001 lux@F1.0 Z120: Channel 1: Color: 0.05 lux@F2.92; Black & white: 0.005 lux@F2.92; 0 lux (IR on); Channel 2: Color: 0.001 lux@F1.0; Black & white: 0.0001 lux@F1.0; 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	Channel 1: electronic defog/optical defog Channel 2: NA
Visible Image Stabilization	Channel 1: Electronic Image Stabilization (EIS)/Optical Image Stabilization (OIS) Channel 2: NA

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	Z86: Channel 1: 10 mm–860 mm Channel 2: 6 mm Z120: Channel 1: 10 mm–1200 mm Channel 2: 6 mm
Field of View	Z86: Channel 1: H: 20.8°–0.41°; V: 11.9°–0.23° Channel 2: H: 56.8°; V: 29.9° Z120: Channel 1: H: 22.06°–0.37°; V: 12.58°–0.21°; Channel 2: H: 56.8°; V: 29.9°
Close Focus Distance	Z86: Channel 1: 1 m–10 m (3.28 ft–32.81 ft) Channel 2: 3 m (9.84 ft) Z120: Channel 1: 1 m–50 m (3.28 ft–164.04 ft); Channel 2: 3 m (9.84 ft)
Optical Zoom	Z86: Channel 1: 86× Channel 2: NA Z120: Channel 1: 120× Channel 2: NA
Aperture	Z86: Channel 1: F2.8–F8.2 Channel 2: F1.0 Z120: Channel 1: F2.92–F11.37 Channel 2: F1.0

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 (Channel 1): Main stream: 2688 × 1520; 1920 × 1080; 1280 × 960; 1280 × 720; 2688 × 1520 (default) Sub stream: 704 × 576; 640 × 480; 352 × 288; 704 × 576 (default) Visible (Channel 2): Main stream: 3840 × 2160; 2688 × 1520; 1920 × 1080; 1280 × 960; 1280 × 720; 2688 × 1520 (default) Sub stream: 704 × 576; 640 × 480; 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, 25 fps by default Sub stream: 1 fps–30 fps, 15 fps by default Visible (60 Hz): Main stream: 1 fps–30 fps, 25 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; 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 (Optional)

Distance	3,000 m (9,842.52 ft)
Angle of Laser Illuminator	0.4°–30° adjustable

Laser Range Finder (Optional)

Distance	6,000 m (19,685.04 ft)
Accuracy	±1m

Intelligence

Heat Detection	Yes
Cold/Hot Spot Trace	Yes

IVS (Perimeter Protection)	Yes. Supports tripwire and intrusion.
Target Distinction	Yes
Target Tracking	Manual tracking and alarm tracking
Boat Tracking	Yes
Boat Detection	Yes
Smoke Detection	Yes
Target Filtering	Yes
Target Distinction	Human/Vehicle classification

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)
Fiber Optic Port	1 × RJ-45 (10/100 Base-T), 1 × optical fiber (100 Mbps, single mode, FC)

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
Anti-corrosion Level	Basic Protection *The products are designed for general use in areas that have no specific requirements for anti-corrosion protection.

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	≤113 kg (249.12 lb)
Gross Weight	≤200 kg (440.92 lb)

Perimeter Protection Distance (IVS Distance)

Focal Length	Distance (Vehicle)	Distance (Human)
23 mm–230 mm	4,830 m (15,846.46 ft)	1,610 m (5,282.15 ft)
30 mm–300 mm	6,300 m (20,669.29 ft)	2,100 m (6,889.76 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

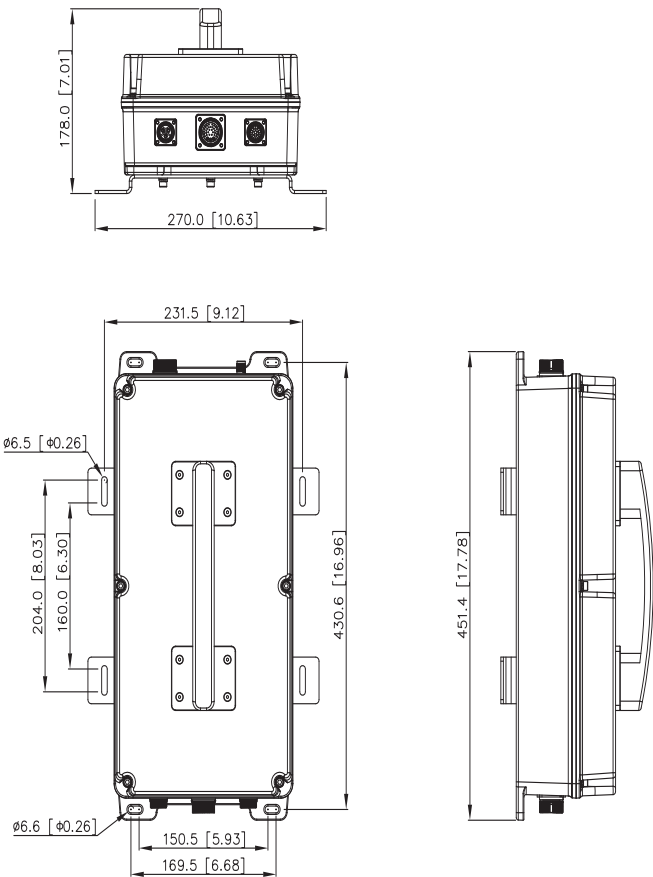
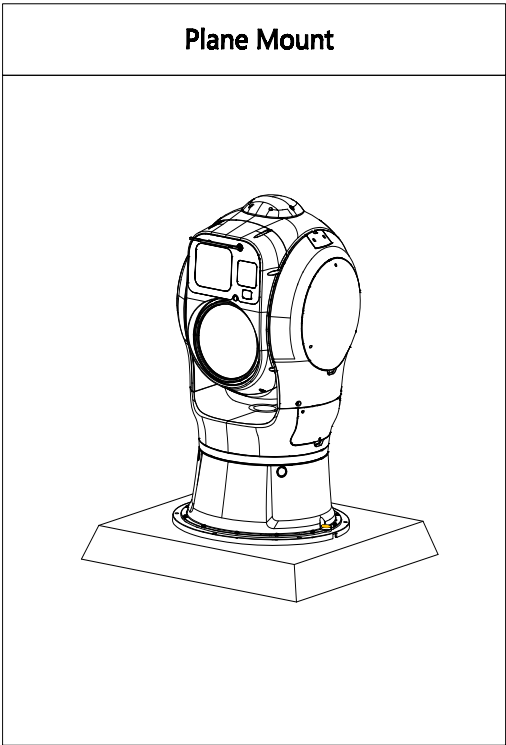
Focal Length	Detection Distance ^①	Recognition Distance ^②	Identification Distance ^③
23 mm–230 mm	Vehicle: 29,389 m (96,420.60 ft); Human: 9,583 m (31,440.29 ft)	Vehicle: 7,347 m (241,04.33 ft); Human: 2,396 m (78,60.89 ft)	Vehicle: 3,674 m (120,53.81 ft); Human: 1,198 m (39,30.45 ft)
30 mm–300 mm	Vehicle: 38,333 m (125,764.44 ft); Human: 12,500 m (41,010.50 ft)	Vehicle: 9,583 m (31,440.29 ft); Human: 3,125 m (10,252.62 ft)	Vehicle: 4,792 m (15,721.78 ft); Human: 1,563 m (5,127.95 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
Thermal Camera	DHI-TPC-PTD8A4C-B23230Z86L3-DC-S57	Thermal: 23 mm–230 mm; Visible: 10 mm–860 mm; Laser illumination distance: 3,000 m
	DHI-TPC-PTD8A4C-B30300Z86L3-DC-S57	Thermal: 30 mm–300 mm; Visible: 10 mm–860 mm; Laser illumination distance: 3,000 m
	DHI-TPC-PTD8A4C-B30300Z86R6-DC-S57	Thermal: 30 mm–300 mm; Visible: 10 mm–860 mm; Laser range finder distance: 6,000 m
	DHI-TPC-PTD8A4C-B30300Z120L3-DC-S55	Thermal: 30 mm–300 mm; Visible: 10 mm–1,200 mm; Laser illumination distance: 3,000 m



Dimensions (mm[inch])

