dahua TECHNOLOGY

Multi-sensor Panoramic + PTZ Network Camera

8 x 2 MP Multi-sensor 360° Panoramic + PTZ Network Camera

- Panoramic Camera: Eight (8) 1/1.9-in. 2 MP Progressive Scan CMOS Imagers
- PTZ Camera: One (1) 1/1.9-in 2 MP Progressive Scan CMOS Imager
- 360° Panoramic View
- Starlight Technology for Ultra-low Light Sensitivity
- Triple-stream Encoding with Smart H.265+ Compression
- 2 x 4096 x 1800 at 25 fps (Panoramic) plus 1080p at 60 fps (PTZ)
- Day/Night (ICR), 3DNR, AWB, AGC, BLC
- True Wide Dynamic Range (120 dB)
- Intelligent Video System (IVS) with Auto-tracking
- IP67 Ingress Protection and IK10 Vandal Resistance

360° Panoramic	H.265+	TRACKING Smart Tracking	ICR D/N	Vandal-proof	IP67	-40°C

System Overview

The Dahua Panoramic Multi-sensor plus PTZ camera combines eight (8) 2 MP sensors working in tandem to create a comprehensive 360° view, and a high-speed PTZ camera to focus on a specific area of the 360° scene. With its all-in-one design, the camera provides a 360° panorama and provides region of interest details at the same time. In addition, the camera offers the Intelligent Video System (IVS), a built-in video analytic algorithm that delivers intelligent functions to monitor a scene for Tripwire violations, intrusion detection, Auto-tracking and abandoned or missing objects. A camera with. The Multi-sensor plus PTZ camera can replace multiple single-sensor cameras providing a higher return on investment.

Functions

Starlight Technology

For challenging low-light applications, Dahua's Starlight Ultra-low Light Technology offers best-in-class light sensitivity, capturing color details in low light down to 0.005 lux. The camera uses a set of optical features to balance light throughout the scene, resulting in clear images in dark environments.

Intelligent Video System (IVS)

IVS is a built-in video analytic algorithm that delivers intelligent functions to monitor a scene for Tripwire violations, intrusion detection, and abandoned or missing objects. A camera with IVS quickly and accurately responds to monitoring events in a specific area. The camera also offers tamper detection by recognizing a dramatic scene change and generating a warning message to inspect the camera.

Auto-tracking

This feature controls the pan/tilt/zoom actions of the camera to automatically track an object in motion and to keep it in the scene. The tracking action can be triggered manually or automatically by pre-defined rules. Once a rule is triggered, the camera can zoom in and track the defined target automatically.

True Day/Night

A day/night mechanical IR cut filter makes this camera ideal for applications with fluctuating lighting conditions, delivering color images during the day and automatically switching to monochrome as the scene darkens.

High Efficiency Video Coding (H.265)

The H.265 (ITU-T VCEG) video compression standard offers double the data compression ratio at the same level of video quality, or substantially improved video quality at the same bit rate, as compared to older video compression technologies. H.265 offers such impressive compression by expanding the pattern comparison and difference-coding, improving motion vector prediction and motion region merging, and incorporating an additional filtering step called sample-adaptive offset filtering.

Smart H.265+

Smart H.265+ is the optimized implementation of the H.265 codec that uses a scene-adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality video without straining the network. Smart H.265+ technology reduces bit rate and storage requirements by up to 70% when compared to standard H.265 video compression.

Interoperability

The camera conforms to the ONVIF (Open Network Video Interface Forum) and to the PSIA (Physical Security Interoperability Alliance) specifications, ensuring interoperability between network video products regardless of manufacturer.

Environmental

With a built-in heater and a temperature range of -40 °C to +60 °C (-40 °F to +140 °F), the camera is designed for extreme temperature environments. Its 6KV lightning rating provides effective protection for both the camera and its structure against lightning, and its IP67 ingress protection make it the choice for installation in even the most unforgiving environments. The camera complies with the IK10 Vandal Resistance impact rating and is capable of withstanding the equivalent of 5 kg (11.02 lbs) of force dropped from a height of 40 cm (15.75 in.).

ONVIF **PSIA**

Technical Specification

Panoramic Camera

Image Sensor	Eight (8) 1/1.9-in. 2 MP CMOS Sensors
Effective Pixels	2 x 4096(H) x 1800(V)
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual: 1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.005 lux at F2.2 (1/3 s, 30 IRE) Color: 0.03 lux at F2.2 (1/30 s, 30 IRE) B/W: 0.003 lux at F2.2 (1/3 s, 30 IRE) B/W: 0.02 lux at F2.2 (/30 s, 30 IRE)
S/N Ratio	More than 50 dB

Panoramic Lens

Lens Type	Fixed
Mount Type	Board-in
Focal Length	5 mm
Maximum Aperture	F2.2
Angle of View	Horizontal: 360° Vertical: 80°

PTZ Camera

Image Sensor	One (1) 1/1.9-in. 2 MP CMOS Sensor
Effective Pixels	1920(H) x 1080(V)
RAM/ROM	1024 MB / 128 MB
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual: 1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.002 lux at F1.5 (1/3 s, 30 IRE) Color: 0.01 lux at F1.5 (1/30 s, 30 IRE) B/W: 0.001 lux at F1.5 (1/3 s, 30 IRE) B/W: 0.008 lux at F1.5 (/30 s, 30 IRE)
S/N Ratio	More than 50 dB

PTZ Lens

Lens Type	Motorized / Auto Iris (HALL)
Mount Type	Board-in
Focal Length	5.5 mm to 206.0 mm
Maximum Aperture	F1.5
Angle of View	Horizontal: 65.8° to 2.0°
Optical Zoom	37x
Focus Control	Motorized

DORI[1] Distance

	Detect (8 ppf)	Observe (19 ppf)	Recognize (38 ppf)	Identify (76 ppf)
Panoramic Camera	53 m (178 ft)	21 m (69 ft)	10 m (33 ft)	5 m (17 ft)
PTZ Camera, Wide-angle	70 m (229 ft)	28 m (92 ft)	14 m (46 ft)	7 m (23 ft)
PTZ Camera, Telephoto	2080 m (6824 ft)	832 m (2730 ft)	416 m (1365 ft)	208 m (682 ft)

PTZ

Pan/Tilt Range	Pan: 0° to 360°, endless Tilt: -20° to 90° Auto flip: 180°
Manual Speed Control	Pan: 0.1° /s to 240° /s Tilt: 0.1° /s to 120° /s
Presets	300
PTZ Mode	5 Pattern, 8 Tour, Auto Pan, Auto Scan
Speed Setup	Human-oriented Focal Length and Speed Adaptation
Power-up Action	Auto restore to previous PTZ and lens status after power failure
Idle Motion	Activate Preset, Scan, Tour, Pattern if there is no command in the specified period
Protocol	DH-SD, Pelco-P/D (Auto recognition)

Video

Compression		Smart H.265+, H.265, Smart H.264+, H.264, MJPEG
Streaming Capability		• Three (3) Streams
Output Channels[2]		Three (3) Channels: • Two (2) Channels for Stitched Panoramic Video • One (1) Channel for PTZ Video
Resolution		
	Panoramic Camera	2 x 4096 x 1800, 2 x 3840 x 1680, 2 x 2880 x 1264, 2 x 1920 x 832, 2 x 1280 x 560, 2 x 1024 x 452
	PTZ Camera	1080p (1920 x 1080), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480), CIF (352 x 240)
Frame Rate		
	Main Stream	Panoramic Camera: 2 x 4096 x 1800 at 25 fps PTZ Camera: 1080p at 60 fps
	Sub Stream 1	Panoramic Camera: 2 x 1024 x 452 at 30 fps PTZ Camera: D1 at 60 fps
	Sub Stream 2	Panoramic Camera: 2 x 1920 x 832 at 30 fps PTZ Camera: 1080p at 60 fps
Bit Rate Control		CBR, VBR
Bit Rate	Panoramic	H.265: 2 x 14 Kbps to 8192 Kbps H.264: 2 x 24 Kbps to 8192 Kbps
	PTZ	H.265: 4 Kbps to 8192 Kbps H.264: 8 Kbps to 7168 Kbps
Day/Night		Auto (ICR), Color, B/W
BLC Mode		BLC, HLC, True WDR (120 dB)
White Balance		Auto, Natural, Street Lamp, Outdoor, Manual
Gain Control		Auto, Manual
Noise Reduction		3D DNR
Motion Detection		Off, On (4 Zone, Rectangle)
Region of Interest		Off, On (4 Zone)
Defog		Support, PTZ camera only
Digital Zoom		16x
Privacy Masking	Panoramic	Off, On (4 Area, Rectangle)
	PTZ	Off, On (24 Area, Rectangle)

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1. The DORI distance is a measure of the general proximity for a specific classification to help pinpoint the right camera for your needs. The DORI distance is calculated based on sensor specifications and lab test results according to EN 62676-4 , the standard that defines the criteria for the Detect, Observe, Recognize and Identify classifications.

2. Dahua recommends using an NVR that supports 4K decoding and ONVIF compatibility in conjunction with the DH-PSD81602N-A360 Multi-sensor Panoramic + PTZ Network Camera. The camera requires three (3) free channels on the NVR.

Audio

Compression	G.711a, G.711Mu, AAC, G.726

Network

Ethernet	One (1) RJ-45 Port (100/1000 Base-T)
Protocol	HTTP, HTTPs, TCP, ARP, RTSP, RTP, UDP, SMTP, FTP, DHCP, DNS, DDNS, PPPOE, IPv4/v6, QoS, UPnP, NTP, Bonjour, 802.1x, Multicast, ICMP, IGMP, SNMP
IP Address	Default Address: 192.168.1.108 (Camera uses a single IP address for all sensors)
Interoperability	ONVIF, PSIA, CGI
Streaming Method	Unicast, Multicast
Maximum User Access	10 Users / 20 Users
Edge Storage	NAS Local PC for instant recording Micro SD Card, maximum 128 GB
Web Viewer	IE, Firefox, Safari
Management Software	Smart PSS, DSS
Mobile Operating System	IOS, Android

Certifications

Safety	EN 60950:2000 UL60950-1
Electromagnetic Compatibility (EMC)	FCC Part 15 Subpart B

Interface

Video	One (1) Port, for PTZ camera only
Audio	Input: Two (2) Channels Output: One (1) Channel
RS485	One (1) Port, for PTZ control
Alarm	Input: Seven (7) Channels (5 VDC, 5 mA) Output: Two (2) Channels (30 VDC, 1 A; 50 VAC, 0.5 A)

Electrical

Power Supply	36 VDC
Power Consumption	< 120 W

Environmental

Operating Conditions	-40° C to +60° C (-40° F to +140° F) Less than 95% RH
Storage Conditions	-40° C to +60° C (-40° F to +140° F) Less than 95% RH
Ingress Protection	IP67
Vandal Resistance	IK10

Construction

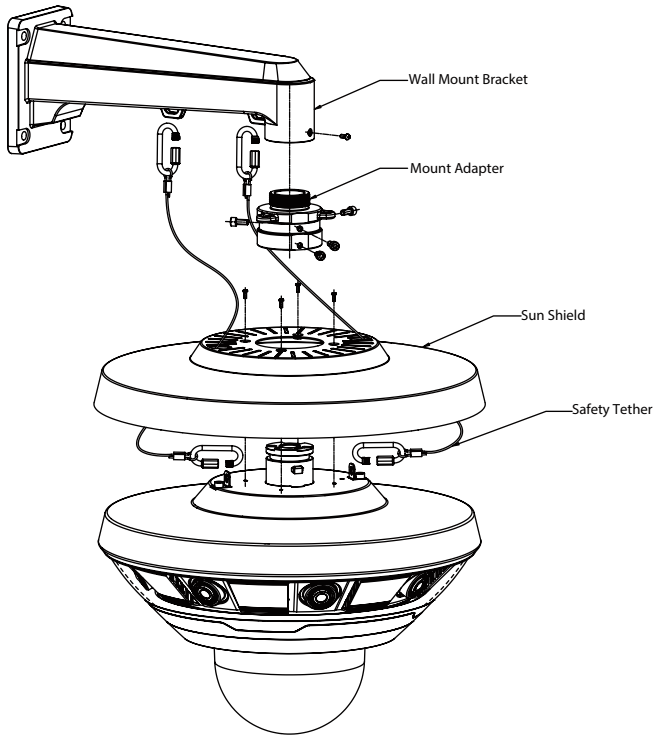|	
Casing	Metal
Dimensions	ø449.50 mm x 342.50 mm (ø17.70 in. x 13.48 in.)
Net Weight	16.0 kg (35.27 lb)
Gross Weight	25.0 kg (55.0 lb)

Intelligence

IVS triggers an alarm and takes a defined action for the following events:

Standard Features	• Tampering with the camera. • Camera loses or changes focus drastically. • Error writing to an onboard Micro SD card. • Error sending or receiving data over the network. • Unauthorized access to the camera.

Premium Features

Motion	An object moves through any part of the scene.
Tripwire	A target crosses a user-defined line.
Intrusion	A target enters or exits a defined perimeter.
Scene Change	A person or object moves the camera to change the scene or covers the camera to obscure the scene.
Abandoned/Missing Object	A target leaves an object in designated area, or a target removes an object from the same designated area.
Auto-tracking	Controls the pan/tilt/zoom actions of the camera to automatically track an object in motion and to keep it in the scene.

Ordering Information

Type	Part Number	Description
Panoramic + PTZ Camera	DH-PSD81602N-A360	Eight (8) x 2 MP Multi-sensor Panoramic + PTZ Network Camera, WDR, IVS
Accessories, Included		Mount Adapter
		Wall Mount Bracket
	DC36V/4.17A	Power Supply

Installation

- Wall Mount Bracket
- Mount Adapter
- Sun Shield
- Safety Tether

Dimensions (mm/in.)

ø449.50 mm (ø17.70 in.)

ø55.0 mm (ø2.17 in.)

182.60 mm (7.19 in.)

299.50 mm (11.79 in.)

342.50 mm (13.48 in.)

ø178.10 mm (ø7.01 in.)

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