

DH-PFR4KS-E50

50m Radar-PTZ Smart Tracking System



System Overview

The radar-PTZ smart tracking system is a system in which radar detects angle, distance, speed of an object, and then transmits the information to the PTZ; and then the PTZ zooms in to get more details of the object.

Functions

24/7

Radar detections are different from video surveillance. It can work normally in severe conditions like dark environment, smog, haze, rain, and snow.

Fewer false alarms

Factors like moving shadows, small animals, insects, raindrops, light and strong wind often result in false alarms. With filtering algorithm applied, the false alarm rate is greatly reduced.

Front-end linkage

For the single dome IP-managed radar and speed dome system, the radar and the speed dome are linked based on the radar and speed dome calibration algorithm.

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.

Ultra-Wide Dynamic Range

For applications with both bright and low lighting conditions that change

Radar

- Active detection: 24-hour continuous detection
- Stereo protection: max. 50m detection distance, 120° detection range
- High accuracy: fewer false alarms and zero miss alarm
- Radar-PTZ linkage solution: realize the perfect combination of the video and radar
- Fast data transmission: control PTZ directly with edge computing
- IP67, IK10

Camera

- 1/1.8" 2Megapixel CMOS
- Powerful 33x optical zoom;
- Starlight technology
- H.265 encoding
- Max. 50/60fps@1080P
- Support Hi-PoE
- IR distance up to 220m
- IP67



quickly, Ultra WDR (140 dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

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.

Protection

The radar system allows for $\pm 25\%$ input voltage tolerance, suitable for the most unstable conditions for outdoor applications. Its 8KV lightning rating provides effective protection for both the camera and its structure against lightning.

Interoperability

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

Technical Specification

Radar

Working Frequency	24.05~24.25GHz
Transmit Power	<20 dBm (100mW)
Network Interface	RJ45
Detecting Mode	Doppler, slow-moving, quick-through.
Target Type	Human/Vehicle/Animal
Max. Target Number	64
Distance	50m(164.04ft)
Angle(Horizontal)	120°
Angle(Vertical)	20°
Scan Frequency	10Hz
Max. Detection Speed	≤50km/h, continuous trace
Min. Detection Speed	0.17m/s, continuous trace
Angle Accuracy	±1°
Installation Height	2~4m(6.56~13.12ft)
Modulation Type	FMCW (Frequency-Modulated Continuous-Wave)
Distance Accuracy	±0.5m(1.64ft)
Transmission power	<20 dBm (100mW)

Camera

Image Sensor	1/1.9" CMOS
Effective Pixels	1920(H) x 1080(V), 2 Megapixels
Scanning System	Progressive
Electronic Shutter Speed	1/1s~1/30,000s
Minimum Illumination	Color: 0.0024Lux@F1.6; B/W: 0.0024Lux@F1.6; 0Lux@F1.6 (IR on)
S/N Ratio	>56.5dB
IR Distance	Distance up to 220m (722ft)
IR On/Off Control	Auto /Manual

Lens

Focal Length	6mm~198mm
Max. Aperture	F1.5-F4.8
Angle of View	H: 60.4°~2.4°
Optical Zoom	33x
Close Focus Distance	10mm~1500mm

PTZ

Pan/Tilt Range	Pan: 0° ~ 360° endless; Tilt: -20° ~ 90°,auto flip 180°
Manual Control Speed	Pan: 0.1° ~200° /s; Tilt: 0.1° ~120° /s

Preset Speed	Pan: 240° /s; Tilt: 200° /s
Presets	300
PTZ Mode	5 Pattern, 8 Tour, Auto Pan ,Auto Scan
Speed Setup	Human-oriented focal Length/ 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)

Intelligence

Event Trigger	Motion detection, Video tampering , Scene changing, Network disconnection, IP address conflict, Illegal Access, Storage anomaly
IVS	Tripwire, Intrusion, Abandoned/Missing

Smart Tracking

Auto Tracking	Support
Import Map	Support PNG, JPG, and BMP maps with the resolution of 480×360~3000×4000
Draw defense protection zone	Support draw alarm zones and shield zones

Video

Compression	H.265+/H.265/H.264+/H.264/MJPEG(Sub Stream)
Streaming Capability	3 Streams
Resolution	1080P(1920×1080)/1.3M(1280×960)/720P(1280×720)/D1(704×576/704×480)/CIF(352×288/352×240)
Frame Rate	Main stream: 1080P/1.3M/720P((1~50/60fps) Sub stream1: D1/CIF(1 ~ 25/30fps) Sub stream2: 1080P/720P/D1/(1 ~ 25/30fps)
Bit Rate Control	CBR/VBR
Bit Rate	H.265/H.264: 256K ~ 8192Kbps
Day/Night	Auto(ICR) / Color / B/W
Backlight Compensation	BLC / HLC / WDR(140dB)
White Balance	Auto, ATW, Indoor, Outdoor, Manual
Gain Control	Auto / Manual
Motion Detection	Support
Region of Interest	Support
Electronic Image Stabilization (EIS)	Support
Optical Defog	Support
Digital Zoom	16x
Flip	180°
Privacy Masking	Up to 24 areas

Audio

Compression	G.711a/G.711mu/PCM/G.726/AAC/G722.1/G.729/MPEG2-Layer2
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Network

Ethernet	RJ-45 (10Base-T/100Base-TX)
Protocol	IPv4/IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, SNMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, 802.1x
Interoperability	ONVIF Profile S&G, API
Streaming Method	Unicast / Multicast
Max. User Access	20 users
Edge Storage	NAS (Network Attached Storage), Local PC for instant recording, Micro SD card 128GB
Web Viewer	IE, Chrome, Firefox, Safari
Management Software	Smart PSS, DSS, DMSS
Smart Phone	IOS, Android

Certifications

Certifications	FCC: EMC Part 15B FCC ID: RF Part 15C CE: EN55032/EN55024/EN301489
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Interface

Video Interface	1 port(BNC, 1.0V[p-p], 75Ω)
RS485	1
Audio I/O	1/1
Alarm I/O	7/2

Electrical

Power Supply	36V DC/2.23A (±25%), Hi-PoE
Power Consumption	Radar: 8W PTZ: 24W, 38W (IR on)

Environmental

Operating Conditions	-40°C ~ 65°C (-40°F ~ +149°F) / Less than 95% RH
Ingress Protection	IP67
Vandal Resistance	IK10 (Radar)

Construction

Casing	Metal
Dimensions	443.3mm x 297mm x 665.3mm (17.45"x11.69"x26.19")
Net Weight	12.5kg(27.56lb)
Gross Weight	16kg(35.27lb)

Ordering Information

Type	Part Number	Description
Detector Series	DH-PFR4KS-E50	50m radar system
	PFR4KS-E50	50m radar system

Accessories

Included:



DC36V power adapter



European standard power cord

Application



Dimensions (mm/inch)

