Technical Specification

Thermal Camera

Image Sensor	Uncooled VOx Focal Plane Detector
Effective Pixels	400 (H) x 300 (V)
Pixel Size	17 μm
Thermal Sensitivity (NETD)	< 40 mK
Spectral Range	8 μm to 14 μm
Image Setting	Brightness, Sharpness, ROI, AGC, FFC, 3D DNR
Color Palettes	18, including: Whitehot, Blackhot, Icefire, Fusion, Rainbow, Globow, Ironbow1, and Sepia

Thermal Lens

Lens Type	Fixed		
Focus Control	Athermalized, Focus-free		
Focal Length	7.5 mm	13 mm	25 mm
Angle of View	H: 53.7° V: 39.7°	H: 30.2° V: 22.6°	H: 15.5° V: 11.6°

DORI Distance[1]

		7.5 mm	13 mm	25 mm
Effective Distance, human (1.80 m x 0.50 m)[1]	Detection	221 m (725 ft)	382 m (1253 ft)	735 m (2411 ft)
	Recognition	57 m (187 ft)	98 m (322 ft)	189 m (620 ft)
	Identification	28 m (92 ft)	49 m (161 ft)	95 m (312 ft)
Effective Distance, vehicle (4.0 m x 1.40 m)[1]	Detection	558 m (1608 ft)	1020 m (3346 ft)	1961 m (6434 ft)
	Recognition	147 m (482 ft)	255 m (837 ft)	490 m (1608 ft)
	Identification	74 m (243 ft)	127 m (417 ft)	245 m (804 ft)

Temperature Measurement

Range	Low	–20° C to 150° C (–4° F to 302° F)		
	High	0° C to 550° C (32° F to 1022° F)		
Accuracy		±2.0° C (±3.6° F), when operating temperature is between –20° C to 60° C (–4° F to 140° F)		
Mode		Spot, Line, Area		
Rule		Supports 12 Rules Simultaneously: • Spot: 12 • Line: 12 • Area: 12		
		7.5 mm	13 mm	25 mm
Temperature Measurement Distance				
Target Size: 0.1 m x 0.1 m, Recommended Distance		4.10 m (13.45 ft)	7.60 m (24.93 ft)	14.70 m (46.26 ft)
Target Size: 0.3 m x 0.3 m, Maximum Distance		12.40 (40.68 ft)	22.90 m (75.13 ft)	44.10 m (144.69 ft)
Rapid Temperature Rise Detection Distance				
Target Size: 0.2 m x 0.2 m, Recommended Distance		22.0 m (72.18 ft)	39.0 m (127.95 ft)	75.0 m (246.06 ft)
Target Size: 0.2 m x 0.2 m, Maximum Distance		46.40 m (152.23 ft)	80.50 m (264.10 ft)	154.80 m (507.87 ft)
Target Size: 2.0 m x 2.0 m, Recommended Distance		220.0 m (721.78 ft)	390.0 m (1279.53 ft)	750.0 m (2460.63 ft)
Target Size: 2.0 m x 2.0 m, Maximum Distance		464.0 m (1522.31 ft)	805.0 m (2641.08 ft)	1548.0 m (5078.74 ft)

Video

Compression		H.265, H.264, H.264H, H.264B, MJPEG
Frame Rate	Main Stream	1280 x 1024, 1280 x 960, 720p, or 400 x 300 at 30 fps
	Sub Stream	640 x 512, 640 x 480, or 400 x 300 at 30 fps
Bit Rate Control		CBR/VBR
Bit Rate		H.264: 640 Kbps to 8192 Kbps
Noise Reduction		2D, 3D
Gain Control		Auto, Manual
Advanced Features		Electronic Thermal Image Stabilization, Digital Detail Enhancement
Motion Detection		Off, On (4 zones, Rectangle)
Region of Interest		Off, On (4 zones)
Digital Zoom		4x
Flip		90°, 180°, 270°
Mirror		Off, On
Privacy Masking		Off, On (4 areas, Rectangle)

Audio

Compression	G.711a, G.711Mu, PCM

Network

Ethernet	RJ-45 (10/100 Base-T)
Protocol	HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP
Interoperability	ONVIF, CGI, Dahua SDK
Streaming Method	Unicast / Multicast
Maximum User Access	20 Users (64 Mbps)
Edge Storage	FTP Micro SD Card Slot, maximum 256 GB
Web Browser	IE 8 or later
Management Software	DSS
Mobile Operating System	Android, IOS
Cybersecurity	Video Encryption, Firmware Encryption, Configuration Encryption, Digest, WSSE, Account Lockout, Security Logs, IP/MAC Filtering, Generating and Importing X.509 Certification, Syslog, HTTPS, 802.1x, Trusted Boot, Trusted Execution, Trusted Upgrade

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. The Detection, Recognition, and Identification values shown are nominal values and should be used as estimates only. Exact value calculations depend on a wide variety of conditions.

Certifications

Safety	UL 60950-1, EN 60950:2000 CAN/CSA C22.2 No. 60950-1-07
Electromagnetic Compatibility (EMC)	47 CFR FCC Part 15 Subpart B ANSI C63.4 - 2009,Canada ICES-003 Issue 5 CISPR Pub. 22

Interface

Video	One (1) Port BNC (CVBS) use for camera installation
Audio	Input: One (1) Channel, 3.5 mm Jack Output: One (1) Channel, 3.5 mm Jack
RS485	One (1) Port
Alarm	Input: Two (2) Channels Output: Two (2) Channel

Electrical

Power Supply	12 VDC ±20%, 1.2 A; or PoE (IEEE 802.3af), ePoE
Power Consumption	Basic: 5.0 W Maximum 13 W

Environmental

Operating Condition	–40° C to +70° C (–40° F to +158° F) Less than 95% RH
Storage Conditions	–50° C to +80° C (–58° F to +176° F)
Ingress Protection	IP67
Surge Protection	Surge: 6 KV Electrostatic, contact: 8 KV Electrostatic, air: 15 KV

Construction

Casing		Metal
Dimensions	Camera	291.0 mm x 103.80 mm x 97.20 mm (11.46 in. x 4.09 in. x 3.83 in.)
	Packaging	365.0 mm x 175.0 mm x 176.0 mm (14.37 in. x 6.89 in. x 6.93 in.)
Net Weight		1.40 kg (3.09 lb)
Gross Weight		1.90 kg (4.19 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	
Tripwire	A target crosses a user-defined line.
Intrusion	A target enters or exits a defined perimeter.
Advanced Features	
Rapid Temperature Rise Detection	Detects a rapid rise in temperature over a short time and issues an alarm for a potential fire.
Cold/Hot Spot Trace	Indicates the coldest and the hottest spot of the scene.
Human/Vehicle Classification	Detects human or vehicle violations using Tripwire or Intrusion detection methods.

Effective IVS Distances – Themal Lens

	7.5 mm	13 mm	25 mm
Human (1.80 m x 0.50 m)	83.0 m (273.31 ft)	143.0 m (469.16 ft)	275.0 m (902.23 ft)
Vehicle (4.0 m x 1.40 m)	231.0 m (757.87 ft)	400.0 m (1312.34 ft)	771.0 m (2529.53 ft)

Via CAT5E/CAT6 Ethernet Cable

ePoE supply voltage 48 V
Maximum DC resistance < 10 Ω/100 m

Cable Length, m (ft)	Bandwidth, Mbps	PoE Load Capacity, W	Hi-PoE Load Capacity, W	Working Mode
100 (328)	100	25.5	53	IEEE/E100
200 (656)	100	25.5	33	E100
300 (984)	100	19	19	E100
400 (1312)	10	17	17	E10
500 (1640)	10	13	13	E10
800 (2625)	10	7	7	E10

Via CAT5E/CAT6 Ethernet Cable

ePoE supply voltage 53 V
Maximum DC resistance < 10 Ω/100 m

Cable Length, m (ft)	Bandwidth, Mbps	PoE Load Capacity, W	Hi-PoE Load Capacity, W	Working Mode
100 (328)	100	25.5	53	IEEE/E100
200 (656)	100	25.5	47	E100
300 (984)	100	25.5	32	E100
400 (1312)	10	23	26	E10
500 (1640)	10	20	20	E10
800 (2625)	10	13	13	E10

Via RG-59 Coaxial Cable

ePoE supply voltage 48 V
Maximum DC resistance < 5 Ω/100 m

Cable Length, m (ft)	Bandwidth, Mbps	PoE Load Capacity, W	Hi-PoE Load Capacity, W	Working Mode
100 (328)	100	25.5	50	IEEE/E100
200 (656)	100	25.5	30	E100
300 (984)	100	18	18	E100
400 (1312)	100	15	15	E100
500 (1640)	10	12	12	E10
800 (2625)	10	6	6	E10
1000 (3281)	10	5	5	E10

Via RG-59 Coaxial Cable

ePoE supply voltage 53 V
Maximum DC resistance < 5 Ω/100 m

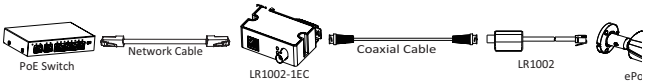
Cable Length, m (ft)	Bandwidth, Mbps	PoE Load Capacity, W	Hi-PoE Load Capacity, W	Working Mode
100 (328)	100	25.5	52	IEEE/E100
200 (656)	100	25.5	48	E100
300 (984)	100	25.5	30	E100
400 (1312)	100	20	23	E100
500 (1640)	10	16	16	E10
800 (2625)	10	10	10	E10
1000 (3281)	10	8	8	E10

ePoE Applications

Pure Ethernet

Passive EoC

EoC with Single-port EoC Receiver



Ordering Information

Type	Part Number	Description
Thermal Network Camera	DH-TPC-BF5401N-TB7	Thermal Network Bullet Camera, 400 x 300, 7.5 mm lens, IVS
	DH-TPC-BF5401N-TB13	Thermal Network Bullet Camera, 400 x 300, 13 mm lens, IVS
	DH-TPC-BF5401N-TB25	Thermal Network Bullet Camera, 400 x 300, 25 mm lens, IVS
Mounting Accessories, optional	PFA121	Junction Box
	PFA151	Corner Mount
	PFA152-E	Pole Mount
	DH-PFM321D-US	12 VDC, 1 A Power Adapter
ePoE Accessories, optional	LR1002	EoC Passive Converter
	LR1002-1EC	Single-port EoC Receiver

Accessories

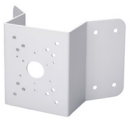
Optional:

PFA121
Junction Box

DH-PFB120C
Ceiling Mount Bracket

DH-PFB129W
Wall/Ceiling Mount Bracket

DH-PFM321D-US
12 VDC, 1 A Power Adapter

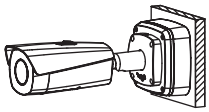
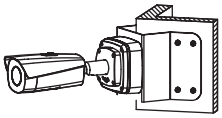
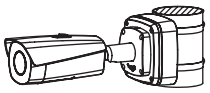


PFA151
Corner Mount

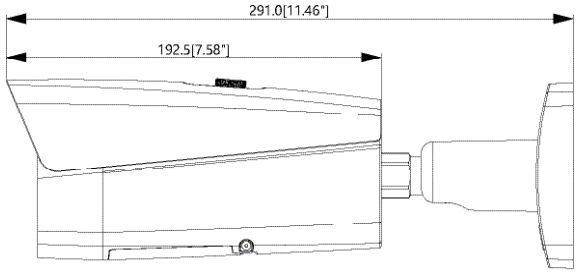
PFA152-E
Pole Mount

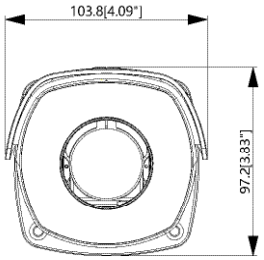
LR1002
EoC Passive Converter

LR1002-1EC
Single-port EoC Receiver

Wall Mount	Corner Mount	Pole Mount
PFA121	PFA121+PFA151	PFA121+PFA152-E
		

Dimensions (mm/in.)





Rev 001.003 © 2021 Dahua Technology USA Inc. All rights reserved. Design and specifications are subject to change without notice.