

# 5MP Panoramic Network Fisheye Camera

## IP67 Mobile Fisheye Camera



- 1/2.7-in. 5MP Progressive-scan CMOS Sensor
- Triple Stream Encoding
- M12 D-Coding Aviation Connection
- Smart H.265+ and Smart H.264+ Dual Codec
- 5 MP (2592 x 1944) at 30 fps Maximum Resolution
- 1.4 mm Fixed Lens
- True Wide Dynamic Range (120 dB)
- Built-in Microphone
- EN 50155 Shock and Vibration Certification
- IP67 Ingress Protection and IK10 Vandal Resistance
- Five-year Warranty\*

### System Overview

Experience the superior clarity of 5MP video and the range of a 360° panoramic fisheye camera. The camera delivers high quality images with crisp details and accurate color rendition, even under complex lighting conditions thanks to True WDR (120 dB). The compact camera replaces multiple single-sensor cameras providing a higher return on investment for your security dollars, and holds the EN 50155 Shock and Vibration Certification making it the perfect choice for all rolling stock.

### Functions

#### True Wide Dynamic Range

The camera achieves vivid images, even in the most intense contrast lighting conditions, using industry-leading wide dynamic range (WDR) technology. For applications with both bright and low lighting conditions that change quickly, True WDR (120 dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

#### 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.

#### Smart Scene Adaptive (SSA) Technology

Smart Scene Adaptive (SSA) is an intelligent image technology, developed by Dahua that automatically evaluates and compensates for changes in the luminance of a scene. SSA automatically regulates the exposure parameters to improve image quality in a backlit scene, especially in scenes with traffic lights or headlights.

#### 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.

#### Environmental

The camera complies with an IK10 impact rating making it capable of withstanding the equivalent of 5 kg (11.02 lbs) of force dropped from a height of 40 cm (15.75 in.). Subjected to rigorous dust and water immersion tests and certified to the IP67 Ingress Protection rating makes it suitable for demanding outdoor applications.

### Technical Specification

#### Camera

Image Sensor	1/2.7-in. 5 MP Progressive-scan CMOS
Effective Pixels	2592(H) x 1944(V)
RAM/ROM	512 MB / 128 MB
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual; 1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.006 lux at F2.0
S/N Ratio	> 56 dB

#### Lens

Lens Type	Fixed-focal								
Mount Type	M12								
Focal Length	1.4 mm								
Max. Aperture	F2.0								
Angle of View	Horizontal: 180° Vertical: 180° Diagonal: 180°								
Iris Type	Fixed								
Close Focus Distance	0.20 m (0.70 ft)								
DORI <sup>1</sup> Distance	<table border="1"> <thead> <tr> <th>Detect (8 ppf)</th> <th>Observe (19 ppf)</th> <th>Recognize (38 ppf)</th> <th>Identify (76 ppf)</th> </tr> </thead> <tbody> <tr> <td>28.0 m (91.90 ft)</td> <td>11.20 m (36.70 ft)</td> <td>5.60 m (18.40 ft)</td> <td>2.80 m (9.20 ft)</td> </tr> </tbody> </table>	Detect (8 ppf)	Observe (19 ppf)	Recognize (38 ppf)	Identify (76 ppf)	28.0 m (91.90 ft)	11.20 m (36.70 ft)	5.60 m (18.40 ft)	2.80 m (9.20 ft)
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#### Pan/Tilt/Rotation

Range	Pan: 0° to 355° Tilt: 0° to 55° Rotation: 0° to 360°
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#### Video

Compression	Smart H.265+, H.265, Smart H.264+, H.264, H.264H, H.264B, MJPEG (sub stream only)
Streaming Capability	Three (3) Streams
Resolution	5 MP (2592 x 1944), 3 MP (2048 x 1536), UXGA (1600 x 1200), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480), VGA (640 x 480), CIF (352 x 240)

Frame Rate	Main Stream: 2592 x 1944 at 30 fps
	Sub Stream 1: D1 at 30 fps
	Sub Stream 2: 720p at 30 fps
Bit Rate Control	CBR/VBR
Bit Rate	H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps
Day/Night	Auto (ICR), Color, B/W
BLC Mode	BLC, HLC, True WDR (120 dB), SSA
White Balance	Auto, Natural, Street Lamp, Outdoor, Manual, Regional Custom
Gain Control	Auto, Manual, Gain Priority, Shutter Priority
Noise Reduction	3D DNR
Motion Detection	Off, On (4 Zones, Rectangle)
Region of Interest	Off, On (4 Zones)
Privacy Masking	Off, On (4 Area, Rectangle)

#### Audio

Compression	PCM, G.711a, G.711Mu, G.726
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#### Network

Ethernet	M12 D-coding Connector (10/100 Base-T)
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 (Profiles S, G, T), CGI, Milestone, Genetec, P2P
Streaming Method	Unicast, Multicast
Max. User Access	20 Users (total bandwidth: 64 Mbps)
Edge Storage	Network Attached Storage (NAS) FTP, SFTP Micro SD Card Slot, maximum 256 GB
Web Viewer	IE 11, Chrome, Firefox

#### Certifications

Safety	UL 60950-1, CAN/CSA C22.2 No.60950-1-07 EN 62368-1
Electromagnetic Compatibility (EMC)	CFR 47 FCC Part 15 Subpart B Electromagnetic Compatibility Directive 2014/30/EU
Rolling Stock	EN 50155 (EN 50121-3-2, IEC61373) EN 45545-2 Fire protection on railway vehicles E-mark (ECE-Regulation No.10.05)

#### Interface

Audio	Built-in Microphone
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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.

Electrical

Power Supply	PoE (IEEE802.3af, Class 0)
Power Consumption	Basic: 4.7 W Maximum: 6 W

Environmental

Operating Temperature	-30° C to +55° C (-22° F to +131° F) Less than 95% RH
Storage Temperature	-40° C to +60° C (-40° F to +140° F)
Ingress Protection	IP67
Vandal Resistance	IK10

Construction

Casing	Metal
Dimensions	ø110.0 mm x 62.0 mm (ø4.33 in. x 2.44 in.)
Net Weight	0.41 kg (0.90 lb)
Gross Weight	0.52 kg (1.15 lb)

Installation Recommendations

Focal Length	Recommended Installation Height	Human Height	Camera Height	Surveillance Radius
1.4 mm	3.0 m to 4.0 m (118.11 in to 157.48 in.)	1.70 m (66.93 in.)	2.50 m (98.43 in.)	4.30 m (169.29 in.)
			3.0 m (118.11 in.)	4.20 m (165.35 in.)
			3.50 m (137.80 in.)	4.0 m (157.48 in.)
			4.0 m (157.48 in.)	3.70 m (145.67 in.)
			4.50 m (177.17 in.)	3.40 m (133.86 in.)

Ordering Information

Type	Part Number	Description
5MP Fisheye Camera	IPC-EB5541N-M12	5MP Panoramic Mobile Network Fisheye Camera, True WDR, M12 D-coded Connector
Mobile Center Software, optional	MCENTERB	Mobile Center Base Package License with 16 Auto-register Video Channels
Compatible Mobile NVR	MN4208-VM	8-channel 2 HDD, GPS, Verizon, WiFi, M12 D-coding, H.265
	MN4104-VM	4-channel 1 HDD, GPS, Verizon, WiFi, M12 D-coding, H.265

Dimensions (mm/in.)

