

# DH-IPC-HDW2221R-ZS

2MP IR Eyeball Network Camera



System Overview

The IR Megapixel Vari-focal Eyeball camera delivers 2MP resolution with a motorized 2.7 mm - 12 mm varifocal lens. The camera's elegant blend of aesthetics combined with a range of easy mounting solutions provides an excellent choice for a variety of small to mid-size applications at an affordable price.

- **Functions**
- 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

## Regions of interest

Regions of Interest (ROI) is a user defined feature that allows the operator to monitor specific areas of a scene while still maintaining overall situational awareness of less important areas

#### Smart IR

With IR illumination, detailed images can be captured in low light or total darkness. The camera's Smart IR technology adjusts to the intensity of camera's infrared LEDs to compensate for the distance of an object. Smart IR technology prevents IR LEDS from whiting out images as they come closer to the camera. The camera's integrated infrared illumination provides high performance in extreme low-light environments up to 60m (197ft).

#### Wide Dynamic Range

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

- · 1/2.7" 2Megapixel progressive CMOS
- · H.264+ & H.264 dual-stream encoding
- · 25/30fps@2M (1920×1080)
- · WDR(120dB), Day/Night(ICR), 3DNR, AWB, AGC, BLC
- $\cdot$  Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- · Micro SD card slot, up to 128GB
- · 2.7~12mm varifocal lens
- · Max IR LEDs Length 60m
- · IP67, PoE











#### Image flip

Capturing unnecessary data such as surrounding hallway walls can increase storage requirements without any added value. The image flip feature allows the camera's image to be rotated in 90° increments for better video optimization.

#### Protection

Supporting  $\pm 10\%$  input voltage tolerance, this camera suits even the most unstable conditions for outdoor applications. Its 6KV lightning rating provides protectection against the camera and its structure from the effects of lightning.

## Interoperability

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

### Smart H.264+

Delivering high quality video without straining the network, Smart H.264+ is the optimized implementation of H.264. The Smart H.264+ encoding platform includes a scene adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction, providing a savings of up to 70% of bandwidth and storage when compared with standard H.264.



Image Sensor	Technical Sp	ecification				
Effective Pixels	Camera					
RAM/ROM         256MB/16MB           Scanning System         Progressive           Electronic Shutter Speed         Auto/Manual, 1/3(4)~1/1000005           Minimum Illumination         0.11ux/F1.4(Color), 0.lux/F1.4(IR on)           5/N Ratio         More than 50dB           IR Distance         Distance up to 60m(197ft)           IR On/Off Control         Auto/ Manual           IR LEDS         2           Lens         Valor Manual           In Lens         Board-in           Focal Length         2.7mm~12mm           Mount Type         Board-in           Focal Length         2.7mm~12mm           Max. Aperture         F1.4           Angle of View         H:99°~37°, V:52°~21°           Focus Control         Motorized           Close Focus Distance         0.3m           DORI Distance         W. 47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           DORI Distance         W. 47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           PTZ         Pan:0° ~360° ; Tilt:0° ~78° ; Rotation:0° ~360°         Video           Compression         H.264+/H.264         Streaming Capability         2 streams           Resolution         208(1920x1080)/1.3m(1280x960)/	Image Sensor		1/2.7" 2Megapixel progressive CMOS			
Scanning System	Effective Pixels		1920(H) x1080(V)			
Delta   Delt	RAM/ROM		256MB/16ME	3		
Minimum Illumination         0.1Lux/F1.4(Color), OLux/F1.4(IR on)           S/N Ratio         More than 50dB           IR Distance         Distance up to 60m(197ft)           IR On/Off Control         Auto/ Manual           IR EDS         2           Lens         2           Lens Type         Motorized           Mount Type         Board-in           Focal Length         2.7mm*12mm           Max. Aperture         F1.4           Angle of View         H:99*~37*, V:52*~21*           Focus Control         Motorized           Close Focus Distance         0.3m           DORI Distance         W 47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           DORI Distance         W 47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           PTZ           Pan/Tilt Range         Pan:0* ~360 *; Tilt:0* ~78*; Rotation:0* ~360*           Video         Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Prame Rate         2M(1*~25/30fps)           D1/CIF(1*~25/30fps)         D1/CIF(1*~25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate	Scanning System		Progressive			
S/N Ratio   More than 50dB     IR Distance   Distance up to 60m(197ft)     IR On/Off Control   Auto/ Manual     IR LEDs   2	Electronic Shutte	er Speed	Auto/Manual, 1/3(4)~1/100000s			
IR Distance   Distance up to 60m(197ft)	Minimum Illumin	ation	0.1Lux/F1.4(Color), 0Lux/F1.4(IR on)			
R On/Off Control   Auto/Manual	S/N Ratio		More than 50dB			
R LEDs	IR Distance		Distance up to 60m(197ft)			
Lens           Lens Type         Motorized           Mount Type         Board-in           Focal Length         2.7mm~12mm           Max. Aperture         F1.4           Angle of View         H:99*~37*, V:52*~21*           Focus Control         Motorized           Close Focus Distance         0.3m           DORI Distance         Detect         Observe         Recognize         Identify           DORI Distance         W         47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           PTZ         T         129(m423ft)         51m(167ft)         26m(85ft)         13m(43ft)           PTZ           Pan/Tilk Range         Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video           Compression         H.264+/H.264           Streams           Resolution         2Streams           2M(1~25/30fps)           Frame Rate           D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W	IR On/Off Contro	ıl	Auto/ Manual			
Lens Type         Motorized           Mount Type         Board-in           Focal Length         2.7mm~12mm           Max. Aperture         F1.4           Angle of View         H:99*~37*, V:52*~21*           Focus Control         Motorized           Close Focus Distance         0.3m           DORI Distance         W         47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           DTZ         T         129(m423ft)         51m(167ft)         26m(85ft)         13m(43ft)           PTZ           Pan/Tilt Range         Pan:0* ~360 *; Tilt:0* ~78*; Rotation:0* ~360*           Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)           Errame Rate           D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W	IR LEDs		2			
Mount Type         Board-in           Focal Length         2.7mm~12mm           Max. Aperture         F1.4           Angle of View         H:99°~37°, V:52°~21°           Focus Control         Motorized           Close Focus Distance         0.3m           DORI Distance         W         47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           DT         129(m423ft)         51m(167ft)         26m(85ft)         13m(43ft)           PTZ           Pan/Tilt Range         Pan:0° ~360° ;Tilt:0° ~78° ;Rotation:0° ~360°           Video           Compression         H.264+/H.264           Streaming Capability           Resolution         1080P(1920×1080)/1.3M(1280×960)/720P(1280×720)/D1(704×576/704×480)/CIF(352×288/352×240)           2M(1~25/30fps)           D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W	Lens					
Focal Length 2.7mm~12mm  Max. Aperture F1.4  Angle of View H:99*~37°, V:52*~21°  Focus Control Motorized  Close Focus Distance 0.3m  Detect Observe Recognize Identify 9m(30ft) 5m(16ft)  T 129(m423ft) 51m(167ft) 26m(85ft) 13m(43ft)  PTZ  Pan/Tilt Range Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°  Video  Compression H.264+/H.264  Streaming Capability 2 Streams  Resolution 1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)  PTA 1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)  Bit Rate Control CBR/VBR  Bit Rate H264:24K ~ 8192Kbps  Day/Night Auto(ICR) / Color / B/W	Lens Type		Motorized			
Max. Aperture         F1.4           Angle of View         H:99°~37°, V:52°~21°           Focus Control         Motorized           Close Focus Distance         0.3m           DORI Distance         W         47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           DTZ         T         129(m423ft)         51m(167ft)         26m(85ft)         13m(43ft)           PTZ           Pan/Tilt Range         Pan:0° ~360° ; Tilt:0° ~78° ; Rotation:0° ~360°           Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/7720P(1280x720)/D(17(704x576/704x480)/CIF(352x288/352x240)           PTAME Rate         2M(1~25/30fps)           D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W	Mount Type		Board-in			
Angle of View	Focal Length		2.7mm~12mm			
Focus Control   Motorized	Max. Aperture		F1.4			
Close Focus Distance         0.3m           Detect         Observe         Recognize         Identify           DORI Distance         W         47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           T         129(m423ft)         51m(167ft)         26m(85ft)         13m(43ft)           PTZ           Pan/Tilt Range         Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video           Compression           H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/720P(1280x720)/D1(704x576/704x480)/CIF(352x288/352x240)           Pan/Tilt Range         Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video           CIP (120x1080)/1.3M(1280x960)/720P(1280x720)/D1(704x576/704x480)/CIF(352x288/352x240)           Pan/Tilt Range         Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video         CIP (120x1080)/1.3M(1280x960)/704x480)/CIP (120x1080)/Tilt	Angle of View		H:99°~37°, V:52°~21°			
Lens	Focus Control		Motorized			
DORI Distance         W         47m(154ft)         19m(62ft)         9m(30ft)         5m(16ft)           PTZ           Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/704x576/704x480)/CIF(352x288/352x240)           2M(1~25/30fps)           Frame Rate           D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W	Close Focus Distance		0.3m			
T 129(m423ft) 51m(167ft) 26m(85ft) 13m(43ft)  PTZ  Pan/Tilt Range Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°  Video  Compression H.264+/H.264  Streaming Capability 2 Streams  1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)  Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°  Video  Compression H.264+/H.264  Streaming Capability 2 Streams  1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)  PTAN COMPRESSION OF TAXABLE OF T		Lens	Detect	Observe	Recognize	Identify
PTZ           Pan/Tilt Range         Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)           Frame Rate         2M(1~25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K~8192Kbps           Day/Night         Auto(ICR) / Color / B/W	DORI Distance	W	47m(154ft)	19m(62ft)	9m(30ft)	5m(16ft)
Pan/Tilt Range         Pan:0° ~360 °; Tilt:0° ~78°; Rotation:0° ~360°           Video         Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)           Ename Rate         2M(1~25/30fps)           D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W		Т	129(m423ft)	51m(167ft)	26m(85ft)	13m(43ft)
Video           Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/720P(1280x720)/D1(704x576/704x480)/CIF(352x288/352x240)           Frame Rate         2M(1~25/30fps)           D1/CIF(1~25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K~8192Kbps           Day/Night         Auto(ICR) / Color / B/W	PTZ					
Compression         H.264+/H.264           Streaming Capability         2 Streams           Resolution         1080P(1920x1080)/1.3M(1280x960)/ 720P(1280×720)/D1(704×576/704×480)/ CIF(352×288/352×240)           Prame Rate         2M(1~25/30fps)           D1/CIF(1 ~ 25/30fps)         D1/CIF(1 ~ 25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K ~ 8192Kbps           Day/Night         Auto(ICR) / Color / B/W	Pan/Tilt Range		Pan:0° ~360 °	;Tilt:0° ~78° ;	Rotation:0° ~3	360°
Streaming Capability         2 Streams           1080P(1920x1080)/1.3M(1280x960)/ 720P(1280x720)/D1(704x576/704x480)/ CIF(352x288/352x240)           2M(1~25/30fps)           Frame Rate         D1/CIF(1~25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K~8192Kbps           Day/Night         Auto(ICR) / Color / B/W	Video					
1080P(1920x1080)/1.3M(1280x960)/   720P(1280x720)/D1(704x576/704x480)/   CIF(352x288/352x240)   2M(1~25/30fps)   D1/CIF(1~25/30fps)   Bit Rate Control   CBR/VBR     Bit Rate   H264:24K~8192Kbps     Day/Night   Auto(ICR) / Color / B/W	Compression		H.264+/H.264			
Resolution         720P(1280×720)/D1(704×576/704×480)/ CIF(352×288/352×240)           Frame Rate         2M(1~25/30fps)           D1/CIF(1~25/30fps)           Bit Rate Control         CBR/VBR           Bit Rate         H264:24K~8192Kbps           Day/Night         Auto(ICR) / Color / B/W	Streaming Capability		2 Streams			
Frame Rate  D1/CIF(1 ~ 25/30fps)  Bit Rate Control  CBR/VBR  Bit Rate  H264:24K ~ 8192Kbps  Day/Night  Auto(ICR) / Color / B/W	Resolution		720P(1280×720)/D1(704×576/704×480)/			
D1/CIF(1 ~ 25/30fps)  Bit Rate Control  CBR/VBR  Bit Rate  H264:24K ~ 8192Kbps  Day/Night  Auto(ICR) / Color / B/W	Farma Data		2M(1~25/30fps)			
Bit Rate H264:24K ~ 8192Kbps  Day/Night Auto(ICR) / Color / B/W	rrame kate		D1/CIF(1 ~ 25/30fps)			
Day/Night Auto(ICR) / Color / B/W	Bit Rate Control		CBR/VBR			
	Bit Rate		H264:24K ~ 8192Kbps			
BLC Mode BLC / HLC / WDR(120dB)	Day/Night		Auto(ICR) / Co	olor / B/W		
	BLC Mode		BLC/HLC/W	DR(120dB)		

White Balance	Auto/Natural/Street Lamp/Outdoor/Manual	
Gain Control	Auto/Manual	
Noise Reduction	3D DNR	
Motion Detetion	Off / On (4 Zone, Rectangle)	
Region of Interest	Off / On (4 Zone)	
Electronic Image Stabilization(EIS)	N/A	
Smart IR	Support	
Digital Zoom	16x	
Flip	0°/90°/180°/270°	
Mirror	Off / On	
Privacy Masking	Off / On (4 Area, Rectangle)	
Audio		
Compression	N/A	
Network		
Ethernet	RJ-45 (10/100Base-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;	
Interoperability	ONVIF, PSIA, CGI	
Streaming Method	Unicast / Multicast	
Max. User Access	10 Users/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, Easy4ip	
Smart Phone	IOS, Android	
Certifications		
Certifications	CE (EN 60950:2000) UL:UL60950-1 FCC: FCC Part 15 Subpart B	
Interface		
Video Interface	N/A	
Audio Interface	N/A	
RS485	N/A	
Alarm	N/A	
Electrical		
Power Supply	DC12V PoE (802.3af)(Class 0)	
Power Consumption	<9.87W	

## Environmental

Operating Conditions	-30° C ~ +60° C (-22° F ~ +140° F) / Less than 95% RH
Strorage Conditions	-30° C ~ +60° C (-22° F ~ +140° F) / Less than 95% RH
Ingress Protection	IP67
Vandal Resistance	N/A

## Construction

Casing	Metal
Dimensions	Ф122mm x 104.9mm(4.8" x4.1")
Net Weight	0.59Kg(1.30lb)
Gross Weight	0.71Kg(1.57lb)

Ordering Information				
Туре	Part Number	Description		
	DH-IPC-HDW2221RP- ZS	2MP WDR IR Eyeball Network Camera, PAL		
2MD C	DH-IPC-HDW2221RN- ZS	2MP WDR IR Eyeball Network Camera, NTSC		
2MP Camera	IPC-HDW2221RP-ZS	2MP WDR IR Eyeball Network Camera, PAL		
	IPC-HDW2221RN-ZS	2MP WDR IR Eyeball Network Camera, NTSC		
Accessories (optional)	PFA137	Junction box		
	PFB203W	Wall mount		
	PFA152	Pole mount		

# Accessories

# **Optional:**



Junction Mount	Pole Mount	
PFA137	PFB203W + PFA152	
Wall Mount		
PFB203W		

# Dimensions (mm/inch)



