RISE 4220HD Series

H.264 High-Definition, IP68 Dome Positioning System

RISE
Rugged Innovation with Superior Endurance

Advanced Optics

- Superior 1080p image quality
- Powerful 30x optical zoom with 12x digital zoom (360x total)
- Image defog/dehaze analytics
- Electronic image stabilization (EIS)
- Dark scene enhanced intensity
- Bright source whiteout reduction

Rugged Construction

- Operates in hurricane force winds
- Built-in electrical transient/surge protection to CISPR 24 levels
- Purged and pressurized IP68 ingress protection
- NEMA TS2 temperature range, -34°C to 74°C

Flexible Installation and Seamless Interoperability

- ONVIF Profile S compliant
- NTCIP 1205 camera control compliant
- Hybrid IP/analog video-serial PTZ operation
- User defined video stream profiles
- Presets, tours, sectors and privacy zones
- H.264 Base/Main/High profiles and MJPEG encoding
- Web server configuration, operation and viewing
- Single CaT5e cable with PoE++
- Pendent, wall, pole and corner mounting bracket options

ONVIF S NTCIP hybrid NEMA

CohuHD Costar's RISE 4220HD dome positioning system combines crystal clear HD image quality, bandwidth efficient H.264 compression, smooth variable speed positioning and IP68 protection delivering the CohuHD quality and performance you expect!

The RISE 4220HD provides full 1080p imaging with 30x optical zoom, delivering full frame rate HD images over the entire zoom range for very cost effective long-range surveillance applications.

True day/night technology using a removable IR cut filter produces exceptional low light sensitivity down to 0.00025 fc.

For installations subject to wind or vibration, electronic image stabilization assures steady, clear images and enables the system designer to utilize existing bridge sign and traffic light poles for camera mounting.

The RISE 4220HD includes defog/dehaze image processing, enhancing video performance in foggy and hazy conditions encountered in surveillance and traffic monitoring applications.

The RISE 4220HD includes variable hi-speed pan and tilt drive, with 360° continuous pan and +5° to -90° tilt. Fast positioning speeds result in 180° movements in less than 1.5 seconds. The high-torque motor and gearing design, insures the positioner maintains position in high shock, vibration and hurricane force winds.

Providing multiple video stream profiles, the RISE 4220HD delivers up to 5 or more independently configured H.264/MJPEG streams as well as analog video output with serial RS422 camera PTZ control.

Use of the IP and analog output allows integrating with analog systems today while providing a smooth transition to HD video over IP tomorrow.

The RISE 4220HD provides a full function web server, allowing complete administrative and operator control capabilities.

Administrative features include configuring network settings, user password assignments, setting video streaming properties, configuring camera imaging properties, defining presets and tours, and assigning camera ID labels.

The RISE 4220HD is designed to operate in harsh weather with its IP68 enclosure protection. This eliminates the effects of water intrusion, pollutants and corrosives.

CohuHD delivers years of clean, reliable images and backs it with a world class three-year warranty.

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CAMERA

Sensor	1/2.8" CMOS
Scanning	Progressive
Resolution	1,920 x 1,080
Digital Formats	1080p, 1080i, 720p
Frame Rate	30 fps
Camera Format	Day/Night (IR Cut Filter)
Day/Night Modes	Auto, Color, B/W
S/N Ratio	>50 db

SENSITIVITY

Standard	
Color, 1/30, f1.4	0.4 lux (0.04 fc)
B/W, 1/30, f1.6	0.04 lux (0.004 fc)
Digital Slow Shutter	
Color, 1/2, f1.4	0.025 lux (0.0025 fc)
B/W, 1/2, f1.6	0.0025 lux (0.00025fc)

OPTICS

Zoom Lens	30x, 4.4 to 132mm
Aperture	f1.4 -> f4.6
HAFOV	63.4° to 2.1°
Focus	Auto/Manual [Near, Far]
Focus Search	Normal, Bright, Point Source
Focus Sensitivity	Low, Normal, High
Iris	Auto/Manual [Open/Close]
Digital Zoom	12x, Off/On [Depth]

IMAGE PROCESSING

Defog Mode	Off/Auto/Manual [3 Levels, Strength and Color Adj.]
Image Stabilization	Off/On
Enhanced Intensity	Off, Enhanced, Whiteout Reduction
Dynamic Range	>90dB Off/On [3 Levels, Normal, Combo, Contrast]
Back Light Comp	Off/On [Level Setting]
Shutter (AES)	Auto/Manual [1/2 -> 1/30,000]
Slow Shutter	Off/On [1/15->1/2] with Limit Setting
IR Correction	Off/On [850nm]
White Balance	Auto/Manual [Red/Blue Adjustment]
(WB) Modes	Normal, Mercury, Sodium Vapor
AGC	1 to 48db, Adjustable
Sharpness	Soft, Normal, Sharp, Sharpest
Noise Reduction	4 Levels [Normal, Medium, Strong, Fixed]

IP STREAM

Video Codec	ISO/IEC 14496-10:2014 H.264 Base, Main and High Profiles MJPEG
Video Streams	8+ independent video streams dependent on processing budget
Video Protocols	RTSP/RTP Unicast RTSP Interleave Unicast HTTP Tunneling Unicast RTP Multicast
Video Resolution	1080p, 720p, D1, VGA, QVGA QQVGA
Video Frame Rate	1 to 30, 30 default
Video Data Rate	256 Kbs to 8 Mbs
Video Rate Control	Variable or Constant Bit Rate
Video GOV	1 to 600, 30 default
Video Latency	Four frames (0.133 sec.)
Video Transmission	99.999% error free

NETWORK INTERFACE

Network Format	802.3u 100Base-T, MDI-X auto-sensing, full duplex
Network Protocol	TCP, UDP, IPv4, IGMP, ICMP, DNS, DHCP, RTP, RTSP, SNMP, RTCP, NTP, HTTP, SOAP, HTTPS ARP, FTP, SMTP, Telnet, ONVIF Profile S, NTCIP 1205
Media Players	VLC, Quick Time or any media player compliant with RFC 2326, 3984, 3550, 2435, ISO/IEC 13818-1
ONVIF	Profile S, Test Specification v 15.06
Camera Protocols	ONVIF Profile S NTCIP 1205 UDP or TCP, Cohu Legacy, CohuT
Security	4 Levels: Admin, Oper, User, Anonymous [User Name + Password], Digest Authentication
Updates	File upload over network using camera web server interface

ANALOG INTERFACE

Video	NTSC
Serial PTZ	RS422, full/half duplex, 1,200 to 115k baud adjustment, data, stop and parity bit configuration.
Camera Protocols	CohuHD Legacy, Pelco D, Ultrak, NTCIP 1205. Contact CohuHD for latest camera protocol support.

ON SCREEN DISPLAY (OSD)

OSD Capacity	Up to 8 OSD Elements can be selected for display on video
OSD Elements	Camera Title, Preset Title, Position, Compass, Sector Title, Event Title, Time/Date, Service Message, Logo
OSD Characters	ASCII set, up to 25 characters per element
OSD Size	Small, Medium or Large. OSD Size is scaled to image resolution, where small = 4%, medium = 5% and Large = 6% of the image vertical resolution.
OSD Color	White
Position	Grouped [Top Left, Top Right, Bottom Left, Bottom Right or Custom [Each element is positioned using x, y coordinates]
Logo Display	xxx.bmp format [x, y position]

POSITIONING DRIVE

Pan Range	360° continuous rotation
Tilt Range	+5° to -90°, 190° total
Preset Speed	Peak speed of 300°/sec 180° movement < 1.5 Seconds
Pan Speed, Manual	0.1° to 45°/second
Tilt Speed, Manual	0.1° to 45°/second
Speed Resolution	> 64 Variable speed levels
Repeatability	+/- 0.1°
Resolution	+/- 0.1°
Presets	Up to 512, Includes pan, tilt, zoom, focus, preset ID, I/O output state
Tours	Up to 512, Includes presets with dwell, speed, direction and recurrence properties
Auto Park	Returns to a preset or tour after timer expires, Timer Value [Off, 1 Minute to 999 Hours]

PRIVACY MASKS

Capacity	Up to 16 Rectangular Masks. Note: Use of Mosaic reduces capacity to 8 Masks
Color	Selectable from available palette
Transparency	0 to 100%
Mosaic	Off, Fine, Medium and Coarse settings - See Note in Mask Capacity

DIGITAL I/O

Digital Inputs	Two (2) Sensor Inputs, Dry contact, N.O or N.C
Digital Outputs	Two (2) Control Output, Open collector

ELECTRICAL

Input Voltage	PoE++ or 24 Vac model dependent
Power	Up to 60 watts maximum
Transient/Surge	CISPR 24

MECHANICAL

Weight	14.0 lbs (6.3 kg) Camera 18.0 lbs (8.2 kg) Shipping
Dimensions	Refer to dimensional diagram 15"x15"x15" Shipping (381x381x381 mm)
Construction	Powder Coated aluminum
Sunshield	Included as standard
Color	Light Gray Cardinal Coating T241-GR142
Dome	Polycarbonate, Optically Correct

ENVIRONMENTAL

Protection Rating	IP68, Pressurized with Dry Nitrogen, 3.5 psi. Water immersion at 1m for 24 hours with no water ingress
Operating Temp	Per NEMA TS2, para 2.2.7 -30°F to 165°F (-34°C to 74°C)
Vibration	Per NEMA TS2 para. 2.2.8. 5-30Hz sweep @ 0.5g applied in each of 3 mutually perpendicular planes.
Shock	Per NEMA TS2 para. 2.2.9. 10g applied in each of 3 mutually perpendicular planes
Wind Survivability	Up to 150 mph - 120 mph for 45 minutes - 150 mph for 15 minutes

CERTIFICATIONS

FCC Class A
CE
RoHS

ORDERING MODEL NUMBERS

4221-1000	PoE++, Pigtail RJ45 Connector
4222-1000	PoE++, MS Connector
4224-1000	24Vac, MS Connector

ACCESSORIES

Mounts for model 4221-xxxx	
Wall	8438-4
Pole	8438-5
Corner	8439-8
Mounts for model 4222-xxxx and 4224-xxxx	
Wall	7411420-001
Pole	8518-2
Field Cables	
CA276 Series	For Model 4221-xxxx
CA279 Series	For Model 4224-xxxx
CA280 Series	For Model 4222-xxxx
Power Supplies	
7412007-003	PoE++ 60W, -34 to 74C

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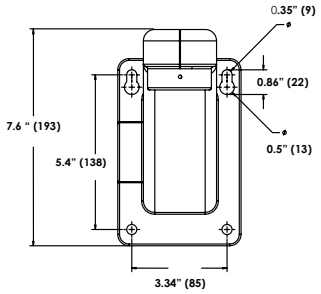
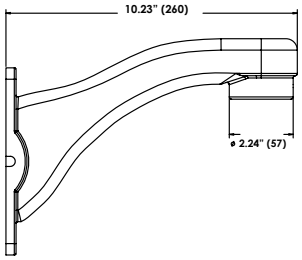
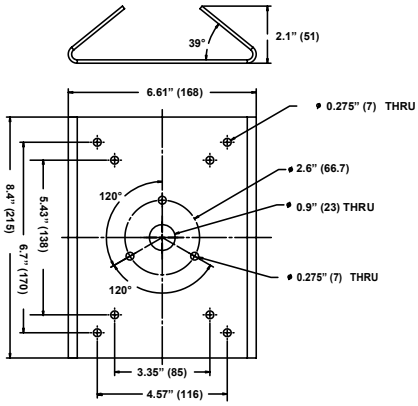
4221-xxxx Mounts

Wall Mount 8438-4



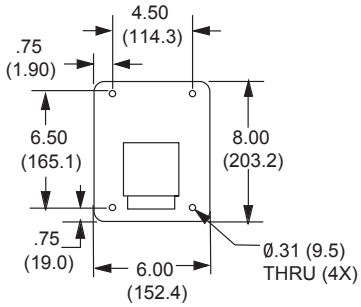


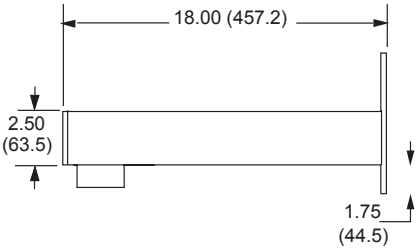
Pole Mount 8438-5 (Includes 8438-4)



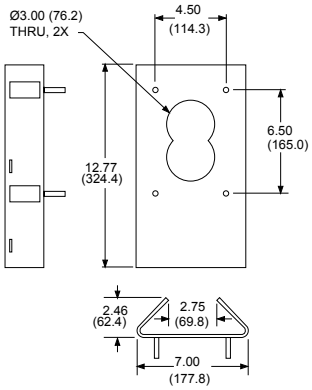
4222-xxxx and 4224-xxxx Mounts

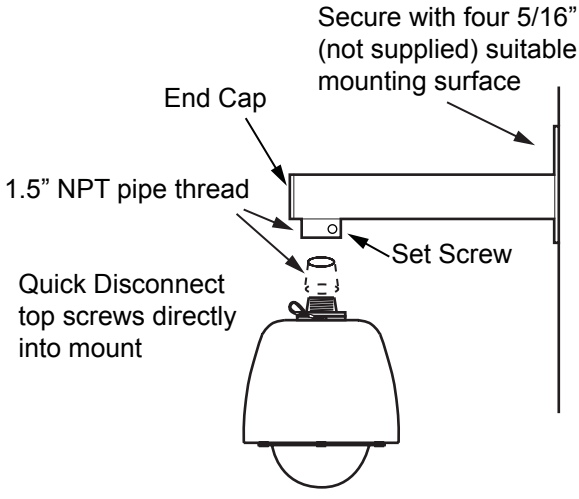
Wall Mount 7411420-001

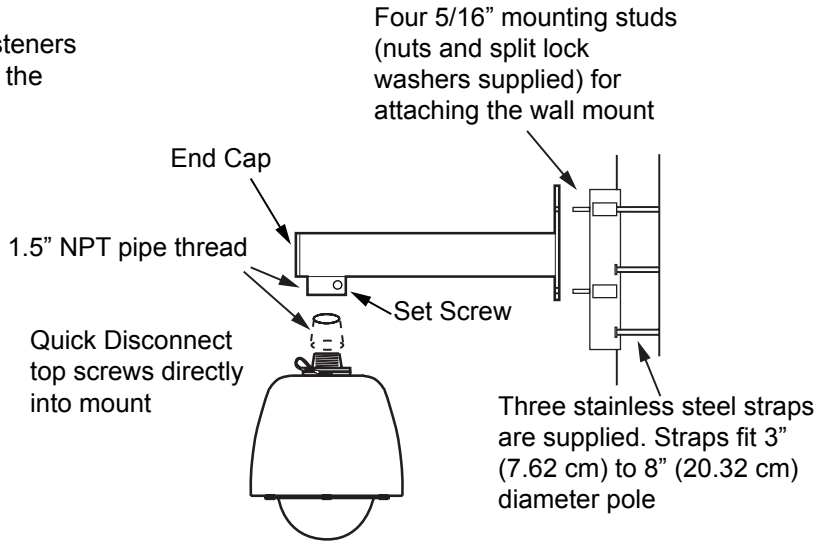




Pole Mount 8518-2 (Includes 7411420-001)







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VERTICAL PIXELS ON TARGET (VPOT)

120 VPOT

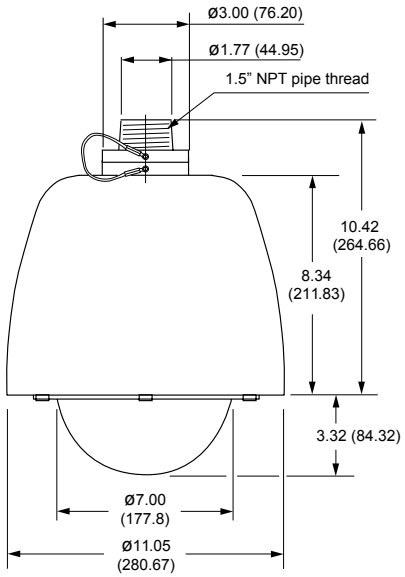
30 VPOT

10 VPOT

VIEWING DISTANCE COMPARISON MATRIX

Range	Image Format	Resolution	Sensor	Zoom	HAFOV (degrees)	Identify (120 VPoT)	Recognize (30 VPoT)	Detection (10 VPoT)
Medium	D1	640x480	1/4"	35x	1.73	1,060 ft. (322 m)	4,270 ft. (1,298 m)	13650 ft. (4,150 m)
Medium	720p	1280x720	1/3"	30x	2.1	1,770 ft. (538 m)	7,120 ft. (2,165 m)	22,730 ft. (6,911 m)
Long	**1080p**	**1920x1080**	**1/3"**	**30x**	**2.1**	**2,340 ft. (713 m)**	**9,450 ft. (2,880 m)**	**30,160 ft. (9,193 m)**
Ultra-Long	1080p	1920x1080	1/2.7"	55x	0.5	10,960 ft. (3,332 m)	44,180 ft. (13,434 m)	141,000 ft. (42,875 m)
Ultra-Long	1080p	1920x1080	1/2.7"	137.5x	0.2	27,895 ft. (8,482 m)	112,100 ft. (34,087)	358,721 ft. (109,079 m)

DIMENSION INCHES (MM)



RISE Series IP Video Cameras

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The RISE Series IP video cameras and designed and built by CohuHD Costar for critical infrastructure applications demanding high-quality images, rugged construction and seamless interoperability.

The RISE Series delivers advanced performance at unbeatable pricing.

About CohuHD Costar™

CohuHD Costar is a leading manufacturer of high-definition video systems designed to satisfy the demanding performance requirements for critical infrastructure applications. CohuHD solutions integrate the latest high-definition video imaging and compression technologies into ruggedized camera products for monitoring in critical, sensitive environments.

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