RISE 4220HD Series with Command Core+™

H.264/H.265 High-Definition, IP68 Dome Positioning System

ONVIF® | S T NTCIP™ FDOT APL Approved

HYBRID ANALOG & IP CE NEMA IP68

Made in the USA & NDAA Compliant

Advanced Optics

- Superior 1080p60 image quality
- Powerful 30x optical zoom with 12x digital zoom (360x total)
- Extreme low-light sensitivity of 0.00008 fc
- Image defog/dehaze analytics
- Electronic image stabilization (EIS)
- Superior Wide Dynamic Range of 130db

Rugged Construction

- Designed Specifically for the ITS market
- Operates in hurricane force winds
- Built-in electrical transient/surge protection to CISPR 24 levels
- Precision positioning of 0.1°
- Pressurized IP68 ingress protection
- NEMA® TS2 temperature, -40°C to 75°C
- Lifetime Warranty on moisture ingress into camera head enclosure

Command Core+™ Action Engine

- Automated camera responses
- Preset/Tour activations
- Digital I/O triggers and actions
- Image snapshots with FTP/EMAIL delivery
- Built-in Configuration Wizards

Installation and Interoperability

- ONVIF® Profile S and T compliant
- NTCIP 1205 compliant
- Hybrid IP/analog video-serial PTZ operation
- H.264, H.265 and MJPEG encoding
- Web server configuration, operation and viewing
- Inverted mounting capability
- Single CAT5e cable with PoE++
- Presets, tours, sectors and privacy zones
- LDAP, RADIUS, TACACS+ user authentication

Intelligent ITS Video Analytics:

- Vehicle Detection, Count and Speed, % Change of Speed (Included as standard feature in all models)
- Vehicle Classification*
- Traffic Incident Detection* (Stopped Vehicle, Wrong Way Direction)
- Pedestrian Detection*

CostarHD's RISE 4220HD dome positioning system combines crystal clear HD image quality, bandwidth efficient H.265 or H.264 compression, smooth variable speed positioning and IP68 protection delivering the CostarHD 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.

The quality of RISE 4220HD HD zoom optics far exceeds realized magnification range and magnification of 36x optics advertised in other products.

True day/night technology using a removable IR cut filter produces exceptional low light sensitivity down to 0.00008 fc.

For installations subject to wind or vibration, electronic image stabilization assures steady, clear images.

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 +10° to -90° tilt. Fast positioning speeds result in 180° movements in less than 1.5 seconds.

Providing multiple video stream profiles, the RISE 4220HD delivers up to 4 or more independently configured H.265/H.264/ MJPEG streams.

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

The RISE action engine generates automated system responses to input triggers including date/time schedules and repetitive timers that can activate output actions including presets, image snapshots with FTP/EMAIL uploads, OSD displays and digital outputs.

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.

CostarHD 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" Exmor R CMOS
Scanning	Progressive
Resolution	1,920 x 1,080 (1080p)
Capture Rate	60 fps
Camera Format	Day/Night (IR Cut Filter)
S/N Ratio	>50db

SENSITIVITY

Standard	(f1.6, 1/30, 50 IRE)
Color	0.01 lux (0.001 fc)
B/W	0.0015 lux (0.00015 fc)
Digital Slow Shutter	(f1.6, 1/3, 30 IRE)
Color	0.0013 lux (0.00013 fc)
B/W	0.0008 lux (0.00008 fc)

OPTICS

Zoom Lens	30x, 4.3 to 129mm
Aperture	f1.6 -> f4.7
HAFOV	63.7° to 2.1° @ 1920x1080
Focus Modes	Auto/Manual [Near/Far], Normal, Interval, Zoom Trigger
Focus Sensitivity	Normal/Low
Iris	Auto/Manual [Open/Close]
Lens Speed	Three [Slow, Medium, Fast]
Digital Zoom	12x, Off/On [Depth]

IMAGE PROCESSING

Day/Night Mode	Auto, Color, B/W
Exposure Mode	Auto/Manual
Back Light Comp	Off/On
Shutter	Auto/Manual [1/1 -> 1/10,000 - 22 step]
Digital Slow Shutter	Off/On [1/30->1/1] with Limit Setting
Defog Mode	Off/On/Auto [Defog Strength]
Image Stabilization	Off/On
Dynamic Range	130db, On/Off [Normal, Enhanced]
White Balance	Auto, Indoor, Outdoor, ATW, Sodium Vapor (Fix/ Auto/Outdoor Auto)
AGC	1 to 48db, Adjustable
Noise Reduction	Off, 2D[NR Level], 3D [NR Level]

IP STREAM

Video Streams	4 independently configurable dependent on available processing budget
Video Codec	H.264 [M, H]/H.265 [M], MJPEG
Video Protocols	RTSP/RTP RTSP Interleave HTTP Tunneling RTP Multicast
Video Resolution	1080p, 720p, D1 (NTSC and PAL), VGA, CIF, QVGA
Video Frame Rate	Up to 60 fps, 30 fps default
Video Data Rate	64Kbps to 8Mbps
Video Rate Cntrl	CBR, VBR
Video GOV	1 to 600, 30 default
Video Latency	Four frames (0.133 sec.)
Video Trans.	99.999% error free

NETWORK INTERFACE

Network Format	802.3u 100Base-T, MDI-X auto-sensing, full duplex
Network Protocol	TCP, UDP, IPv4, ICMP, DNS, IGMPv2/v3, DHCP, RTP, RTSP, RTCP, NTP, HTTP, SOAP, HTTPS, ARP, FTP, SMTP, SNMP v1|2|3, TLS, SSL, AES, SMTP, QoS, NTCIP, Telnet, 802.1X, ONVIF Profile S and T, TACACS+, LDAP, Radius, LLDP
Media Players	VLC, Quick Time or any media player compliant with RFC 2326, 3984, 3550, 2435, ISO/IEC 13818-1
ONVIF	Profile S and T
Camera Protocols	ONVIF Profile S and T, NTCIP 1205, CohuT, CohuHD legacy, FAST, Pelco D
Security	4 Levels: Admin, Operator, User, Anonymous [User Name + Password], Digest Authentication, Centralized Authentication
Updates	File upload over network using camera web server interface
Configurations Memory	Stored in Non-Volitile
Browsers	Edge, Firefox, Chrome

DIGITAL I/O INTERFACE

Digital Circuits	Two digital I/O circuits, user defined as either input or output

ANALOG INTERFACE

Video Format	EIA-170A/RS-330 NTSC or PAL Video Format, 1 Volt^{P-P}, 75 ohm output impedance
Serial Data PTZ	EIA RS422, Software configurable over IP for full/half duplex, 1,200 to 115k baud, data, stop and parity bit configurations.
Protocols	CohuHD Legacy, Pelco D/P, Ultrak, NTCIP 1205, A/D, FAST, Javelin

VIDEO ANALYTICS (VA)

ITS Standard	Included in all models. Vehicle Detection, Count and Speed, % Change of Speed, Multiple View Analytics/PTZ Presets
ITS Advanced*	Includes **ITS Standard** plus Vehicle Classification, Traffic Incident Detection, Stopped Vehicle, Wrong Way Direction
ITS Pedestrian Detection*	Includes **ITS Standard** plus Pedestrian Detection
VA Notifications	ONVIF Events, SNMP Traps, Command Core+ Action Engine Output, CSV Files, Web Interface Display
SNMP Traps	Vehicle Detected, Wrong Way Vehicle, Incident, Stopped Vehicle, Speed Change

COMMAND CORE+ ACTION ENGINE

Input Triggers	Digital input, FTP error, Valid or invalid login, Tour stopped, Timer, Scheduler, Video Analytic Event, Preset reached, PTZ moved, Maintenance, User command
Output Actions	Digital Output, Activate Wiper, FTP Image, Send Email, Send Text, Start Preset or Tour, Display OSD Message, Timer/ Scheduler On/Off Mode Control, Delay, Reset System, Clear Analytics Stats
Trigger Queuing	User selectable mode. Processes output actions by trigger priority, first in, or last in.
Servers	Multiple FTP and EMAIL servers can be configured for use by camera system

ON SCREEN DISPLAY (OSD)

OSD Capacity	Up to 7 OSD Elements can be selected for display on video
OSD Elements	Text, Preset, Position, Compass, Date/Time, Sector, Maintenance, Action Event
OSD Characters	Up to 40 characters per text element
OSD Size	Adjustable from 12, 18, 24, 30, 36, 42, 48, 54, 60, 72, 84 or 96 pt. size
OSD Color	White, Black, Green, Red, Blue
OSD Transparancy	Adjustbale from 0-100%
OSD Background	Transparant, Black
OSD Location	Upper Right/Left, Lower Right/Left, Center, Custom
Banner Display	On/Off, Top/Bottom, 4 OSD elements
Logo Display	BMP, GIF, JPEG, PNG Format, [x,y] position, Transparency

PRIVACY MASKS

Capacity	Up to 24 rectangular masks, displayed on 8 places per screen simultaneously.
Color	User selectable
Mask Interlock	Mask positions and size are scaled and interlocked with PTZ movements

* License Fee Required

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POSITIONING DRIVE

Pan/Azimuth Range	360° continuous rotation
Tilt/Elevation Range	+10° to -90°, 200° total
Preset Speed	Peak speed of 300°/sec 180° movement < 1.5 Seconds
Manual Speed	0.1° to 80°/second
Speed Resolution	> 64 Variable speed levels
Repeatability	+/- 0.1°
Resolution	+/- 0.1°
Presets	Up to 256, Includes pan, tilt, zoom, focus, preset ID, I/O output state
Tours	Up to 256, 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]
Features	Auto focus/iris on PTZ, Proportional PTZ, Video freeze on preset, High wind/vibration mode, Set north calibration,

ELECTRICAL

Input Voltage	PoE+, PoE++ or 24VAC/DC Model Dependent
Power	PoE++ and 24VAC/DC 20W, 60w with heater ON PoE+ 20W, 25.5W with heater ON
Voltage Range	NEMA standard TS 2-2003 section 2.2.7 tests C thru H
Transient/Surge	Certified to CISPR 24 levels
Emmissions	Certified to CISPR 22 levels

MECHANICAL

Weight	12.5lbs (5.7kg) Camera 16.5lbs (7.5kg) Shipping
Dimensions	Refer to dimensional diagram 15”x15”x15” Shipping (381 x 381x 381 mm)
Construction	Powder Coated aluminum
Sunshield	Included as standard
Color	Light Gray Cardinal Coating T241-GR142
Dome window	Nylon, Optically Correct
IK10	Camera System except dome window is IK10

ENVIRONMENTAL

Protection Rating	IP68, Pressurized with Dry Nitrogen, 3.5 psi. Water immersion at 1m for 24 hours with no water ingress. Lifetime warranty on moisture ingress.
Operating Temp	PoE++ and 24VAC/DC Models -40°F to 165°F (-40°C to 75°C) Per NEMA TS2, para 2.2.7 4228-1000 PoE+ Model -4°F to 165°F (-20° to 75°C)
Internal Heaters	Two DC resistive heater assemblies, software controlled, to maintain internal heat for operation down specified operating temperatures above.
Relative Humidity	Operation from 0-100%
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
Corrosion	MIL-STD-810G, Method 509.5, Paragraph 4.5.2, ANSI NCSL Z540-1, ISO 17025:2005
Wind Survivability	Up to 150mph - 120 mph for 45 minutes - 150 mph for 15 minutes
MTBF	330,000 hours, based on HALT Steady State Field MTBF calculations

EMC CERTIFICATIONS

CE, FCC Part 15B, RoHS
AS/NZS CISPR 22:2009+A1:2010
CAN/CSA-CISPR 22-10
EN 55022:2010+AC: 2011
EN 55024:2010
EN 61000-3-2:2006 +A1:2009+A2:2009
EN 61000-3-3:2013
EN 61000-4-2: 2009
EN 61000-4-3: 2006 +A1:2008 +A2:2010
EN 61000-4-4: 2004
EN 61000-4-5: 2006
EN 61000-4-6: 2009
EN 61000-4-8: 2010
EN 61000-4-11: 2004

ACCESSORIES

Mounts

Wall	7411420-001
Pole	8518-2

Field Cables

CAT5e Cables	8194602-xxx [where xxx = 025, 055, 100, 150, 200, 250, 300, 328] denoting cable length in feet. Includes RJ45 connectors at each end of cable.

Power Supply

7412007-003	PoE++, 60W, 110/220VAC Input, IP50, -40 to 74°C, Surface Mount
7412007-004	PoE++, 60W, 12-48VDC Input, IP50, -40 to 74°C, DIN Rail
7411543-010	24VAC, 100VA, 110/220VAC, IP66, -34 to 74°C
PD-9501GO-ET	Outdoor IP67 Rated PoE++ Power Supply, Surface Mount, -40 to 65°C

RJ45 Coupler

7610203-002	CAT5/6 RJ45 IP67 Coupler

Ethernet Surge Protection

7412009-001	Outdoor IP67 rated ethernet/PoE++ surge protection device

WARRANTY

Lifetime warranty on dome enclosure moisture ingress. Three (3) years on camera and positioner system.

ORDERING INFORMATION

4220-1000-03	RISE IP68 Dome Camera System with 1080p 30x camera, H.264/H.265 IP encoder, pan/tilt positioner and IP68 enclosure system. 60W PoE++ power. Includes a 45” RJ45 male pigtail and ITS Standard Analytics.
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4224-1000-03	RISE IP68 Dome Camera System with 1080p 30x camera, H.264/H.265IP encoder, pan/tilt positioner and IP68 enclosure system. 24Vac/dc power. Includes 18 pin MS connector and ITS Standard Analytics.
4228-1000-03	RISE IP68 Dome Camera System with 1080p 30x camera, H.264/H.265 IP encoder, pan/tilt positioner and IP68 enclosure system. 25.5 W PoE+ power. Includes a 45” RJ45 male pigtail and ITS Standard Analytics.

OPTIONAL ITS ANALYTICS

R-ITS-ADV	Advanced ITS Analytics: Provides ITS Standard Features PLUS Vehicle Size Classification, Incident Detection, Stopped Vehicle, Wrong Way Direction.
R-ITS-PED	Pedestrian Detection: Provides ITS Standard Features PLUS Pedestrian Detection.
R-ITS-ADP	Advanced ITS + Pedestrian: Provides ITS Standard Features PLUS Advanced ITS and Pedestrian Detection Features.

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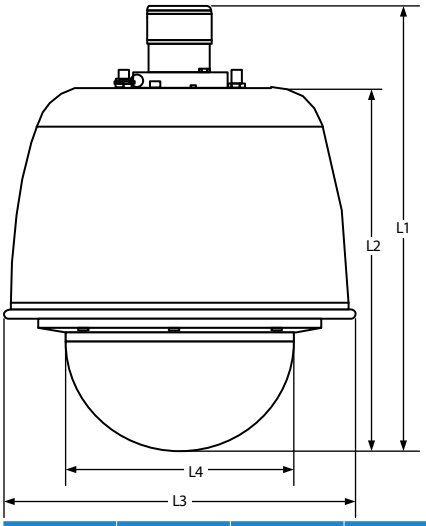
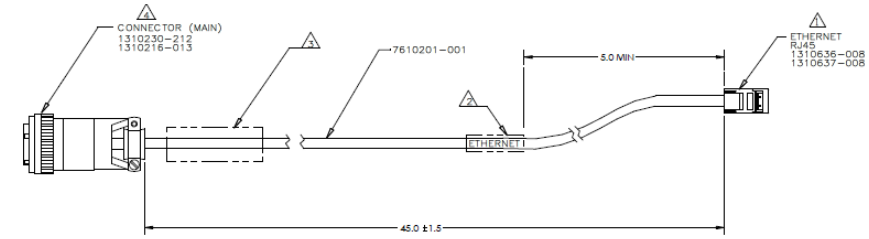
DIMENSIONS



Dimensions	L1	L2	L3	L4
Inches	14.3	11.7	11.4	7.0
Millimeters	363.2	297.2	289.6	177.8

RJ45 PIGTAIL INCLUDED



RISE Series IP Video Cameras

Rugged Innovation with Superior Endurance

The RISE Series IP video cameras and designed and built by CostarHD for critical infrastructure applications demanding high-quality images, rugged construction and seamless interoperability. The RISE Series delivers advanced performance at unbeatable pricing.

About CostarHD™

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