

# RISE 4290HD Night Vision Series

H.264 Dual Spectrum Visible and LWIR Positioning System  
Long Range Surveillance



## PRELIMINARY



### Superior Visible Imaging and Optics

- Superior 1080p image quality
- Powerful 30x optical zoom with 12x digital zoom (360x total)
- Up to 6 km human size object recognition
- 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
- Precision positioning of 0.05°
- Factory Purged and Pressurized IP67 protection
- NEMA TS2 temperature range, -40°C to 75°C
- Integrated faceplate wiper option
- Inverted mounting capability

### Advanced Night Vision Performance

- Night vision LWIR 8-14um spectrum
- VOx uncooled micro bolometer technology
- 640 x 480 and 320 x 240 resolution 17um FPA options
- Continuous zoom or fixed thermal optics options
- Up to 6 km human size object detection
- Scene-based auto-focus (zoom options only)

### Flexible Installation and Seamless Interoperability

- ONVIF Profile S compliant
- NTCIP 1205 compliant
- Hybrid IP/analog video-serial PTZ operation
- H.264 Base/Main/High profiles and MJPEG encoding
- Web server configuration, operation and viewing
- Single CAT5e cable with PoE++

CohuHD Costar's 4290HD dual spectrum positioning system is the latest addition to CohuHD's RISE family of products, combining crystal clear HD visible spectrum imaging along with standard resolution LWIR night vision imaging for delivering unmatched performance at an affordable price.

The 4290HD visible spectrum camera 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 0.00025fc. The visible camera provides defog/dehaze image processing, enhancing video performance in foggy and hazy conditions encountered in surveillance and traffic monitoring applications.

The 4290HD night vision camera offers a choice of uncooled VOx 640x480 or 320x240 LWIR FPA detectors with continuous zoom or fixed focal length hard carbon coated lenses. The 4290HD thermal imaging delivers high quality video, even

in extreme conditions such as total darkness, smoke, atmospheric haze or dust, rain, light foliage, and most types of fog.

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

The 4290HD includes variable hi-speed pan and tilt drive, with 360° continuous pan and 360° tilt. Fast positioning speeds result in 180° movements in less than 2 seconds. The high-torque motor and gearing design ensures the positioner maintains position in high shock, vibration and hurricane force winds.

Providing multiple video stream profiles, the 4290HD delivers up to 5 or more independently configured H.264/MJPEG streams as well as analog video output with serial RS422 camera PTZ control.

Simultaneous streaming of both visible and thermal camera images provides operator viewing and assessment of both spectrums for

detection and identification of camera scene information.

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

The 4290HD 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 4290HD is designed to operate in harsh weather with its purged and pressurized IP67 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.

# RISE 4290HD Night Vision Series

H.264 Dual Spectrum Visible and LWIR Positioning System

Long Range Surveillance

## PRELIMINARY

### VISIBLE 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 [1/2-30,000]
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]

### THERMAL CAMERA

Detector	Uncooled VOx
Image Resolution	640x480 or 320x240
Pixel	17µm
Spectral Band	8 - 14 µm
Sensitivity (NEdT)	<50 mK @ F1.0
Frame Rate	30Hz or 9Hz

### IMAGE PROCESSING

Digital Zoom	4x [640 x 480] 2x [320 x 240]
Image	Brightness/contrast, CLAHE, LAP, Auto histogram
Image de-noise	Spatial and temporal
Process mixing	Alpha mixing of Histogram w/LAP or CLAHE
Color Palettes	Monochrome or Color

### THERMAL OPTICS - ZOOM

35 - 105mm f/1.6	8.9° to 3.0°	320x240
35 - 105mm f/1.6	17.1° to 5.9°	640x480
50 - 150mm f/1.6	6.2° to 2.1°	320x240
50 - 150mm f/1.6	12.4° to 4.2°	640x480
Lens Type	Athermalized, Hard Carbon	
Focus Type	One-Shot Auto Focus, Manual [Near/Far]	

### THERMAL OPTICS - FIXED

35mm F1.6	8.8°	320x240
35mm F1.6	17.6°	640x480
50mm F1.6	6.2°	320x240
50mm F1.6	12.4°	640x480
Lens Type	Athermalized, Hard Carbon	
Focus Type	Manual [Near, Far]	

### IP STREAM

Video Streams	5 or more video streams dependent on available processing budget
Video Codec	H.264 Base, Main and High Profiles, MJPEG
Video Protocols	RTSP/RTSP Interleave HTTP Tunneling RTP Multicast
Video Resolution	1080p, 720p, D1, VGA, QVGA, QQVGA,
Video Frame Rate	1 to 30 fps, 30 fps default
Video Data Rate	64Kbs to 8Mbs
Bite Rate Control	Variable or Constant
Video GOV	1 to 600, 30 default
Video Latency	Four frames (0.133 sec.)
Video Trans.	99.999% error free
Web Page Display	Side by side or single view of visible and thermal video streams

### 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, RTCP, NTP, HTTP, SOAP, HTTPS ARP, FTP, SMTP, Telnet. ONVIF Profile S
Media Players	VLC, Quick Time or any media player compliant with RFC 2326, 3984, 3550, 2435, ISO/IEC 13818-1
ONVIF	Profile S
Camera Protocols	ONVIF, NTCIP 1205, CohuT, CohuHD legacy
Security	4 Levels: Admin, Operator, User, Anonymous [User Name + Password], Digest Authentication
Updates	File upload over network using camera web server interface

### ANALOG INTERFACE

Video	NTSC, single channel, switch between
Serial PTZ	RS422, full/half duplex, 1,200 to 115k baud adjustment, data, stop and parity bit configuration.
Camera Protocols	CohuHD Legacy, NTCIP 1205, Pelco D, Ultrak, AD

### 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, Status, 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 Position	White 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	360°
Pan Speed	0.05° to 45°/second
Tilt Speed	0.05° to 45°/second
Speed Resolution	16 or 64 Variable Speeds
Preset Speed	180° < 2 Seconds
Accuracy	+/- 0.05°
Resolution	+/- 0.05°
Holding Torque	Maintains position and operates in winds up to 100 mph
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

### PRIVACY MASKS [VISIBLE CAMERA ONLY]

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

### ACTION ENGINE

#### DIGITAL I/O

Digital Circuits	Four Digital I/O circuits, User defined as either input or output
------------------	---

#### INPUT TRIGGERS

Digital Inputs, Repetitive Timer, Date/Time Scheduler, Preset Reached, PTZ Move
---

#### OUTPUT ACTIONS

Digital Output, FTP/Snapshot, Email Notification/Snapshot, Preset or Tour, Display OSD message
--

# RISE 4290HD Night Vision Series

H.264 Dual Spectrum Visible and LWIR Positioning System  
Long Range Surveillance

## PRELIMINARY

### ELECTRICAL

Input Voltage PoE++, 24Vac or 120Vac  
Power Up to 70 watts maximum  
Transient/Surge CISPR 24

### MECHANICAL

Weight 30 pounds (13.61 kg max)  
Dimensions Refer to dimen. diagram  
Construction Powder coated aluminum  
Faceplate Wiper Visible camera only [On/Off, Dwell, Time out settings]  
Sunshield Included as standard  
Inverted Mounting Yes. Software selectable

### ENVIRONMENTAL

Protection Rating Camera - IP67, Pressurized with Dry Nitrogen, 3.5 psi. Positioner Body - IP66  
Operating Temp -40°F to 167°F (-40°C to 75°C) Per NEMA TS2 2.2.7  
Humidity Up to 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  
Wind Survivability Up to 150 mph  
- 120 mph for 45 minutes  
- 150 mph for 15 minutes

### CERTIFICATIONS

FCC Class A, CE, RoHS

### ACCESSORIES

**Mounts**  
Pedestal 7411542-001  
Wall 8425-7  
Pole 8503-0  
Corner 8503-1  
Parapat 8503-2  
7.0" BC Plate 8481-9

### Field Cables

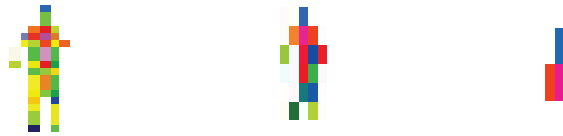
CA276, CA277, CA278 Series

VIEWING DISTANCE - HUMAN, 6 FT. HIGH				IDENTIFICATION	RECOGNITION	DETECTION
Classification	Image Format	Focal Length	HAFOV	ft [m]	ft [m]	ft [m]
Visible Camera	1920 x 1080	132mm	2.1	5,881 [1,792]	17,643 [7,168]	35,286 [10,752]
Thermal Camera	640 x 480	105mm	5.9	3,160 [963]	6,490 [1,978]	19,470 [5,934]
Thermal Camera	640 x 480	150mm	4.2	4,516 [1,376]	9,271 [2,825]	27,813 [8,475]
Thermal Camera	320 x 240	35mm	8.8	1060 [324]	2,183 [665]	6,549 [1,995]
Thermal Camera	320 x 240	50mm	6.2	1,520 [463]	3,118 [950]	9,354 [2,850]

### CohuHD Calculation Criteria: Moving Person, 6ft [1.8m]

#### Thermal (Night) Camera - Per Johnson Criteria Values

- Detection = 2 vertical Pixels on Target
- Recognition = 6 vertical Pixels on Target
- Identification = 12 vertical Pixels on Target



#### Visible (Day) Camera - Per Johnson Criteria Values (x4)

- Detection = 8 vertical Pixels on Target
- Recognition = 24 vertical Pixels on Target
- Identification = 48 vertical Pixels on Target



The calculations assume that the target is under ideal conditions.

# RISE 4290HD Night Vision Series

H.264 Dual Spectrum Visible and LWIR Positioning System  
Long Range Surveillance

ORDERING INFORMATION - 429x-  
1xx0

## ORDERING INFORMATION - 429x-1xx0

MODEL OPTIONS	OPTION DESCRIPTION
<b>PRODUCT SERIES</b>	
429	CohuHD Dual Spectrum Positioner System
<b>Power Options</b>	
1	PoE++ Power, RJ45 Pigtail
2	PoE++ Power, RJ45 Pigtail + accessory pigtail wires
3	PoE++ Power, RJ45 Pigtail + accessory pigtail MS conn
4	24VAC Power, RJ45 Pigtail + accessory pigtail wires
5	24VAC Power, RJ45 Pigtail + accessory pigtail MS conn
6	24VAC Power, Legacy Pinout MS conn pigtail
7	120VAC Power, Legacy Pinout MS conn pigtail
8	120VAC Power, RJ45 Pigtail + Legacy Pinout MS conn pigtail
9	120VAC Power, RJ45 Pigtail + Legacy Pinout AMP conn pigtail
<b>Visible Camera Options</b>	
1	HD 1080p30 30x Camera with Faceplate Wiper
<b>Thermal Camera Options</b>	
1	640 x 480, 35-105mm
2	640 x 480, 50-150mm
3	640X480, 35mm
4	640X480, 50mm
5	320x240, 35-105mm
6	320x240, 50-150mm
7	320 x 240, 35mm
8	320 x 240, 50mm
<b>Thermal Camera Frame Rate</b>	
1	30 Hz (Export Restrictions)
2	9 Hz
<b>Unassigned</b>	
0	None

Example 4293-1210

## RISE Series IP Video Cameras

### *Rugged Innovation with Superior Endurance*

The RISE Series IP video cameras are 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.