



- Full 1080p30 HDTV Image Resolution
- CMOS Progressive Scan Sensor, 1/2.7"
- True Day/Night Operation with Removable IR Cut Filter
- High Power HD Zoom Lens Options up to 137.5x and 2,000 mm
- HAFOV as low as 0.17 degrees
- H.264/MJPEG Video Standards
- Web Server Configuration, Operation and Viewing
- Wide Range, Variable Speed, Smooth Positioning Movements
- Camera Presets and Tours
- IP66/IP67 Ingress Protection
- -32°C to 60°C Operation
- 24Vdc Power Input
- Single Field Connector Installation

CohuHD's 8800<sup>HD</sup> series combines full HD image resolution with high powered HD performance lens optics for delivering unprecedented image quality and detail for long range surveillance applications in the visible spectrum.

By comparison, CohuHD's 8800<sup>HD</sup> series can deliver up to six times the resolution and detail of traditional standard definition long range camera systems.

In addition to the superior image quality and excellent long range zoom optic capabilities, the 8800<sup>HD</sup> series delivers video across standard network infrastructures, with H.264 image compression technology using fractions of the bandwidth traditional MPEG4 or MJPEG requires.

The 8800<sup>HD</sup> superior image quality is centered around a 1/2.7" CMOS 1080p30 progressive scan sensor. Image performance and color reproduction are superb even under challenging lighting conditions. In night mode, the camera enhances low light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera switches from color to monochrome mode automatically by sensing the illumination level or by remote operator command. Image properties

including exposure, gain, backlight and white balance are controlled automatically, or may be overridden for precise user adjustments as needed.

Long range surveillance is achieved by the integrated HD quality zoom lens optics, with focal range options of 12 mm to 660 mm or 16.7 to 1,000 mm. Both lens options include remotely controlled zoom extenders which can be inserted in the optical path increasing the maximum focal range up to 1,680 mm (0.2° HAFOV) or 2,000 mm (0.17° HAFOV)

The focus assist function insures crisp video with the touch of a button as scene views change.

The 8800<sup>HD</sup> series offers a standalone camera system or a fully integrated long range HD camera positioning system. The 8800<sup>HD</sup> camera positioner includes a variable hi-speed pan and tilt drive, 360° continuous pan (azimuth) and +/- 30° tilt (elevation) movements. Manual control positioning speeds range from 0.05° to 50° per second, with preset speeds reaching a maximum 90°/sec, resulting in 180° movements in less than 3 seconds. Preset and directed absolute position movement accuracies are precise to within 0.05°, insuring camera views are on target.

The 8800<sup>HD</sup> provides a full function web server, allowing complete administrative and operator control capabilities. Administrative features include configuring network settings, user password assignments, setting video and streaming properties, defining camera positioning presets/tours, assigning camera ID labels.

The 8800HD is designed to operate in extreme weather, with its IP67 sealed and pressurized enclosure protection. This eliminates the effects of water intrusion, pollutants and corrosives. It is designed to operate in a broad temperature range, from winter in the Arctic to summer in the desert, with heaters and fans, and electrical and mechanical components that are rated for the full range.

The 8800HD Series will deliver years of reliable service and clean images. It is backed by a two-year limited warranty.

### CAMERA

Sensor Type: 1/2.7" C M O S  
Scanning Mode: Progressive  
Active Pixels: 1920 x 1080  
Pixel Size: 3um x 3um  
Resolution/Frame Rate: 1080p30  
Shutter: Rolling  
S/N Ratio: 39dB  
Dynamic Range: 69dB  
Camera Format: Day/Night, [Removable IR Filter]

### SENSITIVITY

Camera/Lens System [ f/4, 30% Video, Max Gain ]  
0.23 fc, 2.25 lux, 1/30 Shutter  
0.7 fc, 0.70 lux, 1/15 Shutter  
0.035 fc, 0.35 lux, 1/8 Shutter  
Sensor Faceplate [ 50% Video, 28db Gain ]  
0.1 fc, 1.0 Lux, 1/30 Shutter

### EXPOSURE CONTROL

Shutter: Auto / Manual [1/30 ~ 1/8,000]  
Auto: Adjustable MIN / MAX Setting  
Minimum Value: 1/8, 1/15 or OFF (1/30)

### GAIN CONTROL

Auto: Adjustable MIN / MAX Levels  
Manual: Selectable Fixed Gain Level; 0 ~ 36dB

### BACKLIGHT COMPENSATION

On/Off with level adjust 1.0 to 3.0

### WHITE BALANCE

Auto: 2800K~7500K  
Manual: Adjustable Red / Blue (0-16384)

### IMAGE PROPERTIES

Contrast 0-100  
Brightness 0-100  
Saturation 0-100  
Sharpness 0-100  
Hue 0-100

### OPTICS

55x, 137.5x with 2.5x Extender Inserted  
60x, 120x with 2.0x Extender Inserted

### FOCAL LENGTH (+/- 5%)

55x Option  
12 ~ 660mm  
30.5mm ~ 1,680mm with extender inserted  
60x Option  
16.7 ~ 1,000mm  
33.4 ~ 2,000mm with extender inserted

### APERTURE @ FOCAL RANGE

55x Option f/4.0 to f/36  
60x Option f/3.5 to f/32

### ANGULAR FIELDS OF VIEW

55x  
12 mm 27.4°h x 15.7°v  
660 mm 0.51°h x 0.29°v  
1,680 mm 0.20°h x 0.11°v  
60x  
16.7 mm 19.7°h x 11.1°v  
1,000 mm 0.33°h x 0.19°v  
2,000 mm 0.17°h x 0.1°v

### MINIMUM OBJECT DISTANCE

23 Feet (7 meters)

### IRIS CONTROL

Auto with Manual Override [Open/Close]

### FOCUS CONTROL

55x and 60x Options  
One Shot Focus Assist: Optimum focus requires the scene to contain sufficient detail and contrast. The scene illumination must be sufficient to produce a minimum video level of at least 50%.  
Manual Control [Near/Far]  
Lens Speed [Slow, Medium, Fast]

### BACK FOCUS

55x and 60x Options  
Type: Remote Motorized Back Focus. Provides the ability to compensate for changes in lighting conditions. (i.e. Day / Night mode changes and IR Illumination)

### BORE SIGHTING

55x Option  
Without Extender: The Bore sighting shift from Narrow Angle (660mm @ 0.5°) to Wide Angle (12mm @ 27.4°) shall be less than ± 0.1 mRad per degree of the Horizontal Angle of View.

### IP VIDEO ENCODING

Streams Two (2) Individual configurable streams  
Codecs H.264 and MJPEG  
Configurations H.264 (1080p)  
MJPEG (1080p)  
H.264 (720p) + H.264  
H.264 (720p) + MJPEG  
Resolutions Stream 1 [1080p, 720p]  
Stream 2 [D1, CIF]  
Frame Rates 30, 15, 7.5, 6, 5, 3.75, 3, 2, 1.875, 1 [Note: Stream 2 must be <= to Stream 1 frame rate]  
Data Rates Stream 1 [8 Mb to 256Kb]  
Stream 2 [2 Mb to 256Kb]  
Camera Latency Four (4) Frames [0.133 sec]

(Does not include network routing or client rendering latency)

### ON-SCREEN DISPLAY (OSD)

Up to four OSD elements are selectable for inclusion in the camera's two IP video streams. (Note: Three elements maximum on a single stream. The OSD elements display on top or bottom of image, on right side of video. The logo element displays on top or bottom of image on left side.

Camera Title	24 characters
Preset Title	24 characters
Sector Zone	24 characters
Position Title	3 characters, absolute or compass reading
Time/Date	24 Hour Format, Time Zone
Logo Display	xxx.bmp format, 96 x 96 pixels maximum, in multiples of 32 pixels

### VIDEO CONNECTIONS

RTP/RTSP	Eight (8) H.264, Eight (8) MJPEG
RTSP/Interleave	Eight (8) H.264, Eight (8) MJPEG
RTSP Multicast	Eight (8) H.264, Eight (8) MJPEG
HTTP Multicast	Unlimited, H.264 and MJPEG
HTTP Tunneling	Two (2) H.264, Ten (10) MJPEG
MPEG2 TS	Unlimited, H.264 and MJPEG

Note: When streaming at 1080p resolution, the number of connections is reduced by 1/2.

### NETWORK INTERFACE

Network Format	Ethernet 802.3 (100BaseT-TX)
Network Protocol	TCP, UDP, IPv4, IGMP, ICMP, DNS, DHCP, RTP, RTSP, NTP, HTTP, ARP, ONVIF Profile S
Media Players	VLC, Quick Time or any media player compliant with RFC 2326, 3984, 3550, 2435, ISO/IEC 13818-1
ONVIF Support	Profile S
Camera Protocols	Cohu T, Profile S,
Security	Yes, 4 Levels



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CohuHD reserves the right to change specifications without notice

### EVENT MANAGEMENT

#### DIGITAL I/O

Digital Outputs One (1) Control Output, Open collector

#### TRIGGERS

Internal Timer Interval [Off, 1 Second to 999 hours], Duration [Off, 1 Second to Indefinite]

#### ACTIONS

Presets Activates a Camera Preset  
FTP Snapshot Captures Image and sends to FTP site folder  
Digital Output Activates a Digital Output  
EMAIL Sends message to EMAIL address

### POSITIONER

Pan Range 360° Continuous Rotation  
Tilt Range +30° to -30°  
+30° to -20° with Wlper,  
0.05° to 50°/Sec  
Pan Speed 0.05° to 50°/Sec  
Tilt Speed 0.05° to 22.5°/Sec  
Preset Speed < 5 seconds for 180° movement  
Repeatability +/- 0.05°  
Resolution +/- 0.05°  
Presets 64, Includes Pan, Tilt, Zoom  
Tours 8, Includes 32 Presets with individual dwell times  
Patterns Not Available  
Auto Park Returns to a Preset, Tour or Pattern after timer expires, Timer Value [Off, 1 Minute to 999 Hours]  
Privacy Zones Not Available  
Inverted Operation Not Available

### ELECTRICAL

Input Voltage 24 Vdc +/- 10%  
Power Camera Only: 20W Heater Off, 75W Heater On.  
Camera Positioner: 60W Heater Off, 113W Heater On

### MECHANICAL

Construction Powder coated aluminum. External parts corrosion protected with stainless steel fasteners.  
Weight Camera 35 lbs (15.9 kg)  
Camera Positioner: 75 lbs (34 kg)  
Dimensions See Dimensional Diagrams  
Connector Type 39 Pin MS

### ENVIRONMENTAL

Temperature -25F to 140F [-32 C to 60 C]  
Protection Rating IP67, Camera is Pressurized with Dry Nitrogen, 3.5 psi  
Salt Fog MIL-STD-810F, Method 509.4, Procedure I (4 x 24 hour periods, 2 wet, 2 dry), 5%NaCl, 48 hours aggravated test.  
Immersion MIL-STD-810F, Method 512.4. Depth 1.0m duration 0.5 hours.  
Sand/Dust MIL-STD-810F, Method 510.4, Procedure I, with 10.6 ± 7g per cubic meter of dust, at an air velocity of 8.9 ± 1.3m/sec and maximum temperature of +51°C, for a period of 6 hours.  
Vibration Nema-TS2 paragraphs 2.1.9, 2.2.3, 5-30Hz sweep @ 0.5g applied in each of 3 mutually perpendicular planes.

Shock Nema-TS2 paragraphs 2.1.10, 2.2.4, 10g applied in each of 3 mutually perpendicular planes.  
External Icing Nema-TS2 250-2003, paragraphs 5.6  
Corrosion Prot. Per Nema 250-2003, paragraphs 5.10  
Humidity 0-100% N.C per MIL-E-5400T, paragraphs 3.2.24.4 0-100%

### ACCESSORIES

#### Mounts

HD84-101x, HD84-201x Models  
8186-1 Pedestal Mount  
8186-2 Wall Mount Bracket Set  
8186-3 Pole Mount Bracket Set  
8186-4 Corner Mount Bracket Set  
8186-5 Parapet Mount Bracket Set  
HD84-301x, HD84-401x Models  
8185-3 Wall Mount Bracket Set  
8185-4 Pole Mount Bracket Set  
8185-5 Corner Mount Bracket Set  
8185-6 Parapet Mount Bracket Set

#### Cables

CA288 Series  
CA289 Series

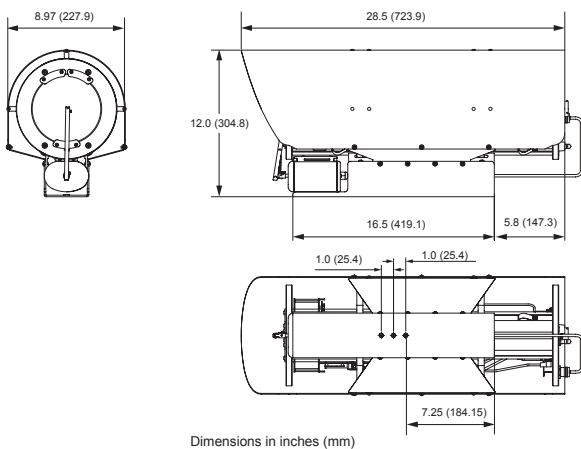
#### Connectors

1310230-105 Field Cable Connector

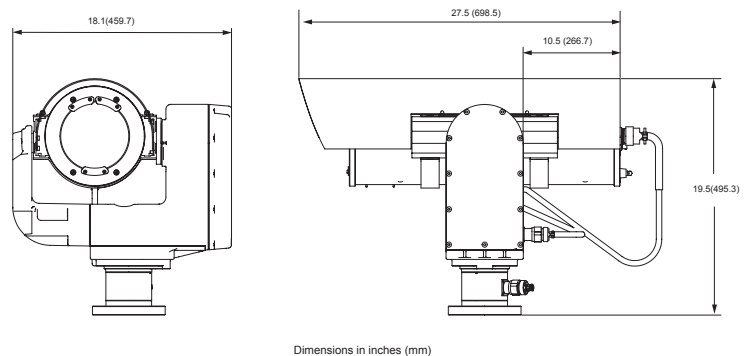
#### Power Supplies

PFC-500-27 Surface Mount PS 24Vdc @ 20A, 90-260Vac  
RMF-2024 Rack Mount PS 24Vdc @ 20A, 90-260Vac

### CAMERA DIMENSIONS



### CAMERA POSITIONER DIMENSIONS



### ACCESSORIES

#### MOUNTS

- HD84-1000, HD84-2000 Models**  
 8186-1 Pedestal Mount  
 8186-2 Wall Mount Bracket Set  
 8186-3 Pole Mount Bracket Set  
 8186-4 Corner Mount Bracket Set  
 8186-5 Parapet Mount Bracket Set

- HD84-3000, HD84-4000 Models**  
 8185-3 Wall Mount Bracket Set  
 8185-4 Pole Mount Bracket Set  
 8185-5 Corner Mount Bracket Set  
 8185-6 Parapet Mount Bracket Set

#### CONTROL CABLES

- CA288 Series  
 CA289 Series

#### CONNECTOR KITS

Field Cable Connector: 1310230-105

### CERTIFICATIONS

- FCC Class A  
 EMC EN55024:2010 (CISPR24)  
 IP67 ANSI/IEC 60529-2004  
 RoHS (Pending)

### ORDERING INFORMATION

- HD84-1011 Stand-alone camera system, 55x Lens  
 HD84-2011 Stand-alone camera system with faceplate wiper, 55x Lens  
 HD84-1012 Stand-alone camera system, 60x Lens  
 HD84-2012 Stand-alone camera system with faceplate wiper, 60x Lens  
 HD84-3011 Camera positioner system, 55x Lens  
 HD84-4011 Camera positioner system with faceplate wiper, 55x Lens  
 HD84-3012 Camera positioner system, 60x Lens  
 HD84-4012 Camera positioner system with faceplate wiper, 60x Lens

### SHIPPING DETAILS

- Weight: (Shipped in Separate Containers)  
 Camera: 40 lbs (18.1 kg)  
 Positoner: 40 lbs (18.1 kg)  
 Dimensions: inches [cm]  
 Camera: 32 x 13 x 16 [81.3 x 33 x 40.6]  
 Positoner: 21 x 17 x 25 [53.3 x 43.1 x 63.5]

### VIEWING DISTANCES (DETECTION - RECOGNITION - IDENTIFICATION)

Calculation Criteria - Image Resolution and HAFOV, Under Ideal Environmental Conditions

- Object = Moving Person  
 Detection = 10 Vertical Pixels on Target  
 Recognition = 30 Vertical Pixels on Target  
 Identification = 120 Vertical Pixels on Target

VIEWING DISTANCE COMPARISON MATRIX - HUMAN, 6 FT.													
Classification	Image Format	Resolution	Sensor	Focal Length	Lens Extender	HAFOV	Identify ( 120 VPoT )		Recognize ( 30 VPoT )		Detection ( 10 VPoT )		
							Imperial (ft)	Metric (m)	Imperial (ft)	Metric (m)	Imperial (ft)	Metric (m)	
<b>55x Option</b>													
Long Range	1080p	1920x1080	1/2.7*	660 mm	Out	0.5	10,960	3,332	44,180	13,434	141,000	42,875	
Ultra-Long Range	1080p	1920x1080	1/2.7*	1,680 mm	2.5x	0.2	27,895	8,482	112,100	34,087	358,721	109,079	
<b>60x Option</b>													
Long Range	1080p	1920x1080	1/2.7*	1,000 mm	Out	0.33	16,640	5,059	66,875	20,335	214,500	65,225	
Ultra-Long Range	1080p	1920x1080	1/2.7*	2,000 mm	2.0x	0.17	33,279	10,119	133,750	40,670	428,100	130,176	

Note: Variables that affect viewing distance performance such as scene/object contrast ratios, lighting conditions, atmospheric attenuation and optical artifacts are not factored into the calculations.