



- 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 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^{HD} 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^{HD} 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^{HD} 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^{HD} 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^{HD} series offers a standalone camera system or a fully integrated long range HD camera positioning system. The 8800^{HD} 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 45° 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^{HD} 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

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°

Pan Speed 0.05° to 45°/Sec
Tilt Speed 0.05° to 22.5°/Sec
Preset Speed < 5 seconds for 180° movement

Repeatability +/- 0.056°
Resolution +/- 0.056°

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

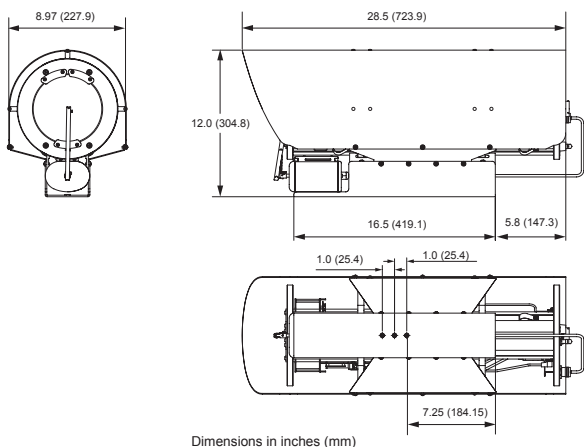
Connectors

1310230-105 Field Cable Connector

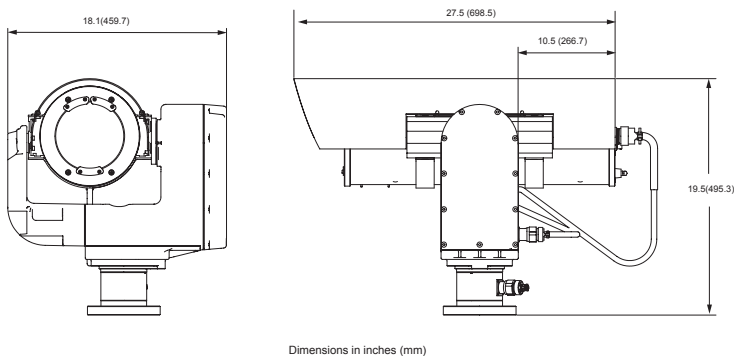
Power Supplies

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 HAAFOV, 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	HAAFOV	Identify (120 VPoT)		Recognize (30 VPoT)		Detection (10 VPoT)	
							Imperial (ft)	Metric (m)	Imperial (ft)	Metric (m)	Imperial (ft)	Metric (m)
55x Option												
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
60x Option												
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.