



Helios™ Brochure

High-definition video camera systems designed for the performance requirements of critical infrastructure installations

CohuHD™ Overview

CohuHD is an industry leading manufacturer of high-definition video systems designed for the performance requirements of critical infrastructure installations.

CohuHD has significant installations worldwide, protecting a variety of critical infrastructure facilities:

- Transportation: Tunnels, Bridges, Roadways, Mass Transit, Rail, Airports and Terminals
- Water: Reservoirs, Dams, Pipelines, Aqueducts
- Power: Refineries, Oil Depot Reserves, Generators, Plants, Electrical Substations, Power Grid Transmission Lines
- Homeland Security: Borders, Airports, Seaports and other Ports of Entry
- Military: Vehicles, Perimeter Surveillance, Bomb Scoring, Targeting Systems, Military Compounds
- Government: Embassies, Buildings, National Treasures

Quality. Made in the U.S.A.

From board-level electronic design to integrated high-profile systems engineering, CohuHD delivers high-performance, unique solutions rather than producing high-volume, low-quality products.



CohuHD maintains its ISO-9001 certified facility with full engineering, manufacturing, quality assurance, marketing and administrative activities in San Diego, California. For more than 50 years, CohuHD has manufactured in the U.S.A. the most reliable, rugged video cameras available.

Knowledge

With vast experience in security, traffic and OEM applications, CohuHD has repeatedly shown that it has the right personnel to tackle the most complex imaging and IP video systems. CohuHD has a long history of providing reliable and ruggedized systems for national defense, space exploration, traffic control, safety, nuclear security, laboratory diagnostics and many other critical applications.

Service

In systems large or small, simple or complex, CohuHD can engineer and support every aspect of your video project. CohuHD's high-quality products ensure years of reliable operation, but should a problem occur, CohuHD's commitment to service assures the timely resolution by our technical support team.

Experience

CohuHD has unmatched electrical, mechanical, software and networking expertise. CohuHD provides its customers with the highest level of quality design, engineering and customer service.

Pioneering Milestones

CohuHD has pioneered numerous recent innovative designs and technologies and was first to market with:

- High-Definition Network Ultra Long-Range Positioner Camera
- Fully Hybrid IP/Analog Line of Domes and Positioners
- HD Camera Line with Integrated Image Defog Processing
- HD Positioner Camera
- HD Camera Line to support NTCIP over IP

Looking to the future, the security market is growing worldwide and CohuHD has a high-quality product offering for demanding outdoor environments in critical applications.

By leveraging our unique product offering, strong channel partnerships and ability to customize and deliver complete solutions to our customers, CohuHD is the ideal partner for all your video solution needs.



Helios™ Family of Video Solutions

Superior Performance - Proven

CohuHD has proven leadership in producing the highest quality ruggedized camera systems, which operate for many years in the rigorous outdoor environments of critical infrastructure facilities.

Exclusive to CohuHD, the Helios series of superior video camera systems delivers the industry's most rugged and highest performance video solutions.

Long-Range Surveillance

Helios camera systems offer the most advanced HD long-range surveillance capability on the market today. By combining HD resolution sensors with powerful HD zoom optics, the ability to see at greater distances is dramatically increased compared to standard-definition PTZ cameras and fixed multi-megapixel cameras.

Highest Reliability - Ruggedized

CohuHD camera systems have become renowned for long-term operation, reliability and low cost of ownership. This is an important distinction that sets CohuHD apart from many other video camera system

manufacturers today. Helios camera systems have the industry's highest level of design standards ensuring reliable operation in the most difficult environments.

Simplified - Network Flexibility

Helios camera systems include H.264 and MJPEG video compression, for bandwidth efficiency and legacy system compatibility. Helios provides the widest range of connection and streaming methods available, simplifying integration of network topologies, firewalls and wireless transmission.

Open Architecture - Interoperability

Helios cameras support numerous industry standard interfaces, ensuring successful system integration without using proprietary designs and avoiding interoperability challenges. The Helios cameras' full hybrid operation allows integration with your analog systems today while providing a smooth transition to HD video over IP tomorrow.

Helios Family of Products

Ruggedized Positioners

- 3960^{SD} - SD 480i, 36x Zoom, EIS
- 3960^{HD} - HD 720p/1080p, 30x/20x Zoom, Defog, EIS
- 5970^{SD} - SD Thermal LWIR, VGA /CIF, 35/60/100mm

Ruggedized Domes

- 3920^{SD} - SD 480i, 36x Zoom, EIS
- 3920^{HD} - HD 720p/1080p, 30x/20x Zoom, Defog, EIS
- 3720^{HD} - HD 720p, 30x Zoom, Defog, EIS
- 3120^{HD} - HD 720p, 30x Zoom, Defog, EIS

Ruggedized Fixed Barrels

- 3930^{HD} - HD 720p, 30x Zoom, Defog, EIS

Ruggedized Ultra Long-Range Positioners

- 8800^{HD} - HD 1080p, 137.5x Zoom



The Power of HD Resolution with HD Optics

Setting the Standard

CohuHD's Helios series sets the standard for long-range surveillance. By combining HD resolution image sensors with powerful HD zoom optics, the ability to see further is dramatically increased as compared to fixed megapixel or standard-definition camera systems.

The Helios Difference

Traditionally, the megapixel camera industry strives to utilize the advantages of multi-megapixel resolution sensors with wide angle lenses, to see wider fields of view, while decreasing the number of cameras required.

Helios utilizes HD resolution and powerful HD zoom lenses to achieve narrow fields of view, dramatically increasing the distances the camera can see.

Traditional vs. Helios

CohuHD's Helios 1080p series cameras deliver six (6) times the pixel resolution of traditional standard-definition cameras.

Combining the performance of up to 137.5x high-powered HD optical zoom lens with a horizontal field of view of 0.2 degrees, CohuHD delivers unprecedented viewing distances unavailable at commercial prices until now.

Image Enhancement Solutions

Select Helios cameras offer advanced image processing capabilities for improving situational awareness, performance and value in difficult weather and mechanical environments.

High zoom magnification amplifies the effects of camera vibrations in the video. Helios supports electronic image stabilization (EIS), which reduces these effects and produces clearer, more useful video.

When common atmospheric conditions such as haze, snow, rain or fog are encountered, the atmosphere interference analytics digitally filters out adverse weather conditions and enhances the video quality, bringing out details that would normally be obscured.

Ruggedization - Translates to Reliability

What is Ruggedization?

In CohuHD terms, it's the culmination of decades of experience in designing and manufacturing products focused on continuous operation in rigorous levels of weather, electrical and mechanical environments, without failures.

CohuHD ruggedized cameras have provided decades of reliable operation on naval ships, desert and arctic areas, military vehicles and critical infrastructures. CohuHD ruggedized designs are the key element for this track record.

The CohuHD Approach

CohuHD employs numerous methods and features in its designs and manufacturing techniques for achieving these levels of ruggedization, including:

- Use of industrial temperature grade IC's and components rather than commercial grade
- Thermal management design to keep critical IC operating temperatures below rated maximums
- Use of nyloc screws rather than plastic snaps
- Use of aluminum materials rather than plastics
- Use of hermetically sealed connectors and O-ring fittings

Validation

To validate our ruggedized designs, CohuHD products are tested to stringent certification and performance standards, including the following:

- Nema TS-2 Temperature
- IP67 Protection
- Nema TS-2 Power
- ASTM B117 Salt Spray
- Nema TS-2 Shock and Vibration
- MIL-STD-810G Salt/Fog, Immersion/Humidity, Dust/Sand
- CISPR 22 & 24



Interface Standards, System Integration and Interoperability

Non-Proprietary Design Goal

CohuHD's Helios camera systems were developed with the goal of being a non-proprietary, industry standards-based product line without need for any proprietary interfaces or drivers for system integration.

Standards - The Right Approach

Helios uses a variety of standard interfaces and protocols for video encoding, video streaming, camera control, camera configuration, analog video, serial control and power.

This standards-based approach provides quick setup and simplified system integration during the installation process, saving time and money while eliminating proprietary interfaces, equipment and software drivers.

ONVIF Profile S

Helios supports a robust and comprehensive implementation of the ONVIF Profile S standard. All Helios camera systems undergo thorough development and testing against the ONVIF standard to obtain full compliance.

This extensive implementation, including dynamic discovery, camera configuration, video streaming, recording and PTZ control, enables quick and powerful system integration with 3rd party VMS systems.

NTCIP 1205

CohuHD's Helios line was first to market implementing NTCIP 1205 over IP, a standard protocol for ITS equipment. NTCIP protocol over IP has enabled the control of a wide

array of equipment under the same communications protocol. Helios cameras add the value of HDTV and H.264 standards, increasing quality and efficiency of ITS video systems.

Hybrid - Bridging Yesterday and Today

The Helios family offers select cameras with full hybrid capabilities, providing analog video and serial PTZ control for integration with legacy analog video systems, while providing superior HD video and control over Ethernet for today and tomorrow.

The Helios family was first to market in providing true hybrid analog and HD camera systems.

Video Streaming - Network Flexibility

Network Cloud Complexities - Solutions

Network topologies used for IP cameras range from simple LAN to highly complex WAN configurations, using a variety of transmission and routing methods and technologies.

Helios cameras have an advanced suite of streaming methods, which are designed to optimize the cameras' video streaming capability in a wide range of network topologies.

Helios Streaming Methods

- RTSP/RTP
- RTSP Interleave
- HTTP Tunneling

- RTP Multicast
- MJPEG Push/Pull Using HTTP
- MPEG2 Transport Stream
- Constrained Mode

Firewalls

Firewalls and proxies can restrict access to only allow traffic on TCP port 80 - the HTTP port used for Internet web access.

With HTTP tunneling, the RTSP Interleaved connection can be mapped for use over port 80. Using standard HTTP GET and POST commands, video is transmitted over the same HTTP port that a client would normally use when connecting to an Internet web page.

Wireless Radios - Solutions

CohuHD supports the constrained mode of operation, which improves the reliability of video streaming over cellular and wireless radio networks that are prone to network interruptions, but also use smaller buffers for handling UDP video packets.

Helios cameras buffer the transmission of video, sending the data more efficiently distributed while preventing bottlenecks on the network.

Helios Dome Positioner Systems - 3920^{HD}, 3920^{SD}, 3120^{HD} and 3720^{HD}



3920^{HD} Features

- 720p or 1080p High-Definition Image Quality
- Up to 30x Optical Zoom with Auto Focus
- Electronic Image Stabilization (30x Only)
- Atmosphere Interference Analytics (30x Only)
- H.264/MJPEG Video Compression
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Camera Presets, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 60°C Operation
- NTCIP 1205 over IP Communication
- ONVIF Profile S Interoperability
- Hybrid Operation: Full IP with Analog Video and Serial PTZ
- 120 Vac or 24 Vac Power
- Single Field Connector Installation
- Pendant, Wall, Pole and Corner Mounting



3920^{SD} Features

- 480i Standard-Definition Resolution
- 36x Optical Zoom with Auto Focus
- Electronic Image Stabilization (30x Only)
- H.264/MJPEG Video Compression
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Camera Presets, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 60°C Operation
- NTCIP 1205 over IP Communication
- ONVIF Profile S Interoperability
- Hybrid Operation: Full IP with Analog Video and Serial PTZ
- 120 Vac or 24 Vac Power
- Single Field Connector Installation
- Pendant, Wall, Pole and Corner Mounting



3120^{HD} Features

- 720p High-Definition Image Quality
- 30x Optical Zoom with Auto Focus
- Integrated Electronic Image Stabilization
- Atmosphere Interference Analytics
- H.264/MJPEG Video Compression
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Programmable OSD, Privacy Masking
- Camera Presets, Patterns, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 80°C Operation
- NTCIP 1205 over IP Communication
- ONVIF Profile S Interoperability
- PoE+ or 24 Vac Power
- Single Field Connector Installation
- Pendant, Wall, Pole and Corner Mounting



3720^{HD} Features

- 720p High-Definition Image Quality
- 30x Optical Zoom with Auto Focus
- Integrated Electronic Image Stabilization
- Atmosphere Interference Analytics
- H.264/MJPEG Video Compression
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Programmable OSD, Privacy Masking
- Camera Presets, Patterns, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- IP66 Ingress Protection
- -40°C to 70°C Operation
- NTCIP 1205 over IP Communication
- ONVIF Profile S Interoperability
- PoE+ or 24 Vac Power
- Single Field Connector Installation
- Pendant, Wall, Pole and Corner Mounting

Helios Camera Positioner Systems - 3960^{HD}, 8800^{HD}, 5970^{SD} and 3960^{SD}



3960^{HD} Features

- 720p, 1080p High-Definition Image Quality
- Up to 30x Optical Zoom, Auto Focus
- Electronic Image Stabilization (30x Only)
- Atmosphere Interference Analytics (30x Only)
- H.264/MJPEG Video Standards
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Camera Presets, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 74°C Operation
- NTCIP 1205 over IP Communication Support
- ONVIF Profile S Interoperability
- Hybrid Operation: Full IP with Analog Video and Serial PTZ
- 120 Vac or 24 Vac Power
- Single Field Connector Installation
- Pedestal, Wall, Pole and Corner Mounting

8800^{HD} Features

- 1080p High-Definition Image Resolution and Quality
- Superior Quality High-Definition Zoom Optics
- Highest Magnification of 137.5x, 1680mm
- Narrow Horizontal Field of View of 0.2°
- One Shot Auto Focus Assist
- H.264/MJPEG Video Standards
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Camera Presets, Tours and Park Functions
- User Control Output Relay
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -32°C to 60°C Operation
- 24 Vdc Power

5970^{SD} Features

- VOx Microbolometer FPA Technology
- 640x480 and 320x240 Image Resolutions
- 35, 60 and 100mm Lens Options
- Manual and Preset Focusing
- H.264/MJPEG Video Standards
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Camera Presets, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 74°C Operation
- NTCIP 1205 over IP Communication Support
- ONVIF Profile S Interoperability
- Hybrid Operation: Full IP with Analog Video and Serial PTZ
- 120 Vac or 24 Vac Power
- Single Field Connector Installation
- Pedestal, Wall, Pole and Corner Mounting

3960^{SD} Features

- 480i Standard-Definition Resolution
- 36x Optical Zoom with Auto Focus
- Electronic Image Stabilization (30x Only)
- H.264/MJPEG Video Standards
- Web Server Configuration, Operation and Viewing
- Smooth Variable Speed Pan and Tilt
- Camera Presets, Tours and Park Functions
- Two Sensor Inputs, One Control Output
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 74°C Operation
- NTCIP 1205 over IP Communication Support
- ONVIF Profile S Interoperability
- Hybrid Operation: Full IP with Analog Video and Serial PTZ
- 120 Vac or 24 Vac Power
- Single Field Connector Installation
- Pedestal, Wall, Pole and Corner Mounting

Helios System Components - 3930^{HD} Fixed Camera, 9710^{HD} and Phoenix^{VMS}



3930^{HD} Features

- 720p High-Definition Image Quality
- 30x Optical Zoom with Auto Focus
- Integrated Electronic Image Stabilization
- Atmosphere Interference Analytics
- H.264/MJPEG Video Standards
- Web Server Configuration, Operation and Viewing
- Programmable OSD, Privacy Masking
- Camera Presets
- Two Sensor Inputs, Two Control Outputs
- Automated I/O Event Actions
- Sealed and Pressurized IP67 Ingress Protection
- -40°C to 74°C Operation
- NTCIP 1205 over IP Communication Support
- ONVIF Profile S Interoperability
- PoE+ Power
- Single Field Connector Installation
- Pedestal, Wall, Pole and Corner Mounting



9710^{HD} Video Decoder

- Single Channel HD Video Decoder
- HDMI Display Output
- Optional NTSC Video Output
- Decodes H.264, MJPEG
- Downscapes HD Video to SD Analog
- Web Server Configuration
- Serial Port for Legacy PTZ Control
- USB Joystick Port for Camera PTZ
- Wide Operating Temperature Range



Phoenix Software

- HDTV Video Recording System with Live Viewing and Control
- Supports Massive Storage Capacities of 1 PetaByte and larger
- Cross Platform OS Support: Windows, Apple and Linux
- Supports RAID 1, 5, 10, JBOD and more
- Tower and Rack Mount NAS Configurations
- Camera Policy Based Recordings
- Data Service Policy Based Archiving
- Optional Low Resolution Companion File Previews
- Low-Cost/High-Capacity Storage Technologies
- BluRay, Optical, Computer Digital Tape
- GUI Client Allows Full System Viewing, Control and Programming Capabilities
- Recording, Storage, and Management of Large Quantities of Standard and High-Definition Video
- Network Attached Storage (NAS) Units are Available from 4TB up to 36TB



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