Helios™ Products

COHU HD COSTAR

INSTALLATION MANUAL

Series
3920HD
3920SD

Dome Positioner System

Technical Manual 6X-1097B

July 15, 2014

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Table of Contents

About this document

This manual contains information on the installation and maintenance of the 3920^{HD}/3920^{SD} dome camera systems. Please read this manual carefully prior to installation to prevent any accidental damage or misuse. The manual is available from the CohuHD website at

- 3920 ^{HD} at *www.CohuHD.com/products/3920hd.html*
- 3920^{SD} at *www.CohuHD.com/products/3920sd.html*

The information in this manual is subject to change without notice. Please refer to the above website for the latest information.

Additional information and documents related to the Camera

For information on the camera system operation and configuration, please see Operation manual 6x-1090. The manual is available from the CohuHD website listed above on specific product pages under the downloads tab.

Copyright/Intellectual property rights statement

FCC compliance

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications to this device can void the user's warranty.

Support services

Please contact the Customer Service Department for technical assistance.

Returns

This item was thoroughly tested and carefully packed at the factory prior to shipping. Upon acceptance by the carrier, the carrier assumes responsibility for the item's safe arrival. Should you receive the item in a damaged condition, apparent or concealed, a claim for damage must be made to the carrier.

If a visual inspection shows damage upon receipt of this shipment, it must be noted on the freight bill or express receipt and the notation signed by the carrier's agent. Failure to do this can result in the carrier refusing to honor the claim.

When the damage is not apparent until the unit is unpacked, a claim for concealed damage must be made. Make a mail or phone request to the carrier for inspection immediately upon discovery of the concealed damage. Keep all cartons and packing materials.

To return the product to the factory for service, please contact the Customer Service Department for a Return Material Authorization (RMA) Number.

Prominently display the RMA number on the outside of the shipping container(s) and on paperwork contained inside. Give a brief description of why the equipment is being returned and list the symptoms of any problems being experienced with the equipment.

Shipment

IMPORTANT

If the camera needs to be shipped, please use the original packaging material which was designed to protect the product during transportation. If the original packaging is lost or damaged, please order a replacement from Customer Service.

Safety instructions

WARNING:
Power supplies used with these Cameras operate from 115 V AC or 24 V AC. These voltages are dangerous. Use extreme care working with equipment connected to either 115 V AC or 24 V AC.

CAUTION:
In order to avoid deterioration of the color filter of the CCD and potential discoloration of the image avoid pointing the Camera directly toward the sun or other bright source.

WARNING:
Do not remove camera from housing. There are no user serviceable parts inside.

- Installation should be done only by qualified installers and conform to all local codes.
- It is the user's responsibility to ensure that the mounting methods are safe and adequate for the location.
- Use only stainless steel hardware to fasten the mount to an outdoor surface.
- To prevent damage from water leakage when installing a mount outdoors, apply sealant around the bolt holes between the mount and mounting surface.
- All servicing should be performed by qualified service personnel. Procedures in this manual do not require entry into the housing of the camera positioning system. The unit contains sensitive devices that can be damaged by static discharge. To reduce the risk of damage to the unit by static discharge do not perform any servicing other than described in these instructions. If the unit is defective, please contact the Customer Service Department for technical assistance.
- It is the sole responsibility of the installer to provide proper installation in compliance with all local codes and regulations.

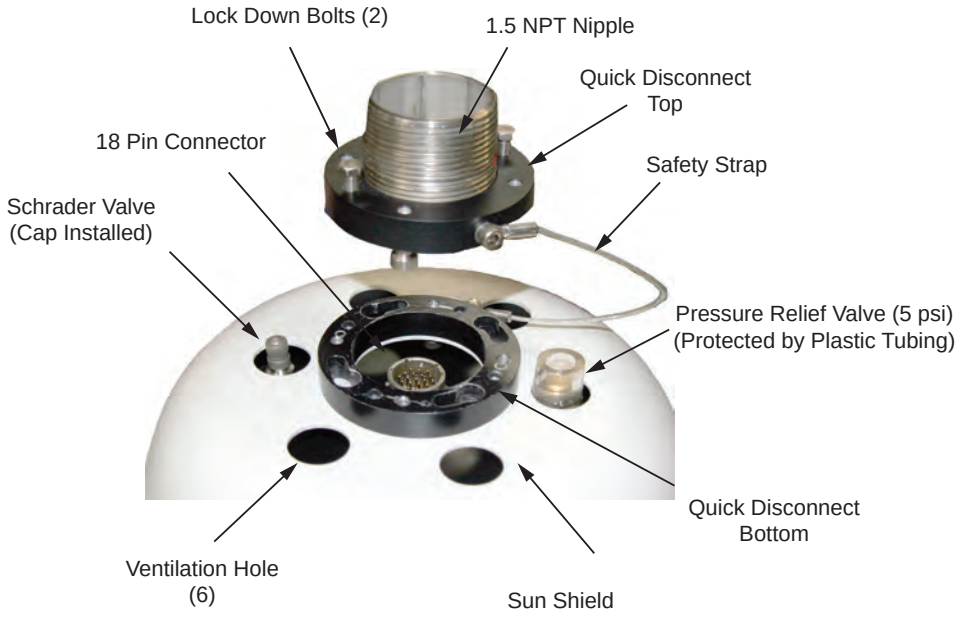
1.0 Introduction

The CohuHD 3920^{HD} (High Definition) and 3920^{SD} (Standard Definition) Camera Systems are IP camera systems in environmentally sealed and pressurized dome enclosures. The camera system provides IP video streams with H.264 and MJPEG compression plus an analog composite video output. The camera includes variable a hi-speed pan and tilt drive with 360°continuous pan and +5° to -90° tilt movements. The enclosures are pressurized to 3 - 5 psi and meet International Protection rating IP67. Control interfaces are via Ethernet network connection or RS-422 serial communications.

The 3920^{HD} and 3920^{SD} camera systems comply with NEMA TS 2 standards for shock and vibration specifications.

For more information on specifications and datasheets, please refer to the CohuHD website.

1.1 Product Description



NPT - National Pipe Thread

Camera Top View

NOTE: See section 3.3 for instructions on the Quick Disconnect disassembling/reassembling.

1.2 Equipment Supplied

The camera system is supplied with:

- An 18-pin MS type metal connector. The supplied connector is to be wired to the system interconnection cable.

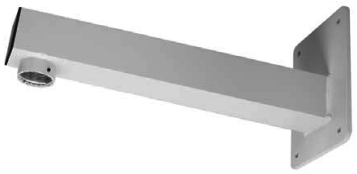
For more information on the connector see chapter 2.2 of this manual.

Optional Accessories

The following optional mounts and cables are recommended by CohuHD for camera system installation and can be purchased with the Camera:

Mounts:

- Wall, CohuHD p/n 7411420-001.
- Pole, CohuHD p/n 7411421-001. The pole mount is designed for use with the wall mount (see above).



Wall Mount

For more information on each type of mount see chapter 3 of this manual.

Pole Mount

Cables:

- CA252 series with 120V AC MS connector.
- CA255 series with 24V AC MS connector.

For more information on cables see chapter 2.3 of this manual.

2.0 Installation

This chapter covers the general installation and cable requirements of the 3920^{HD} and 3920^{SD} series.

Before starting installation:

- Choose the installation mounting method. See chapter 3 of this manual.
- Verify that the cables can be routed to the location of the mounting assembly.

See section 3.0 for details on the installation procedure for recommended mounts.

Figures 1 and 2 show interconnection diagrams for the 3920^{HD}/3920^{SD} series Cameras:

- Figure 1 shows a typical set up interconnection diagram for the Camera using IP output.
- Figure 2 shows a setup of the Camera using analog and IP output.

These diagrams give an idea of a typical installation. Each installation site will have its own unique requirements.

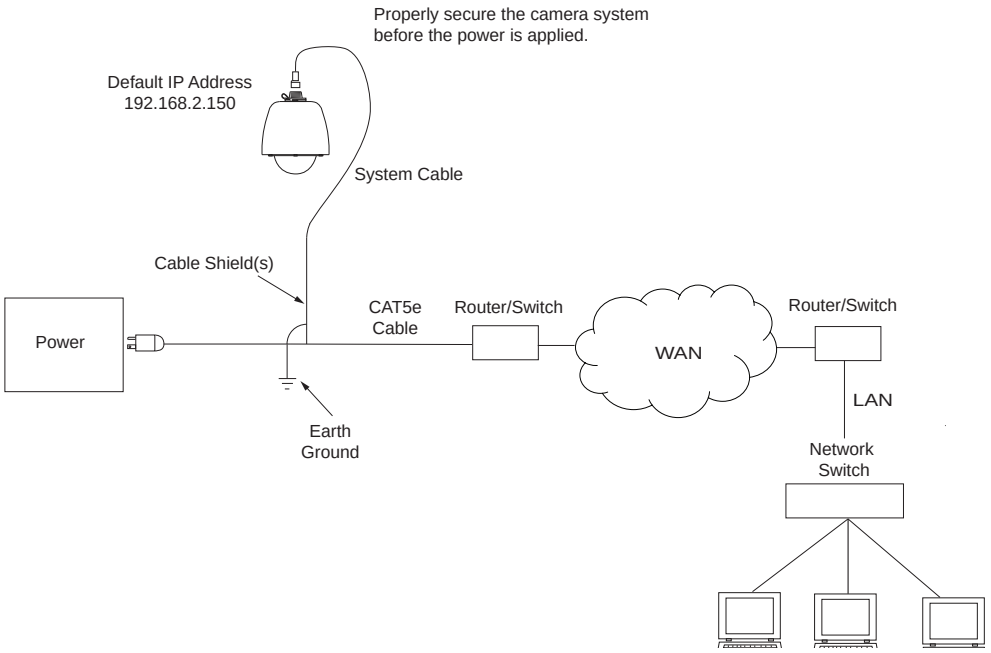


Figure 1. Interconnection Diagram, IP Output

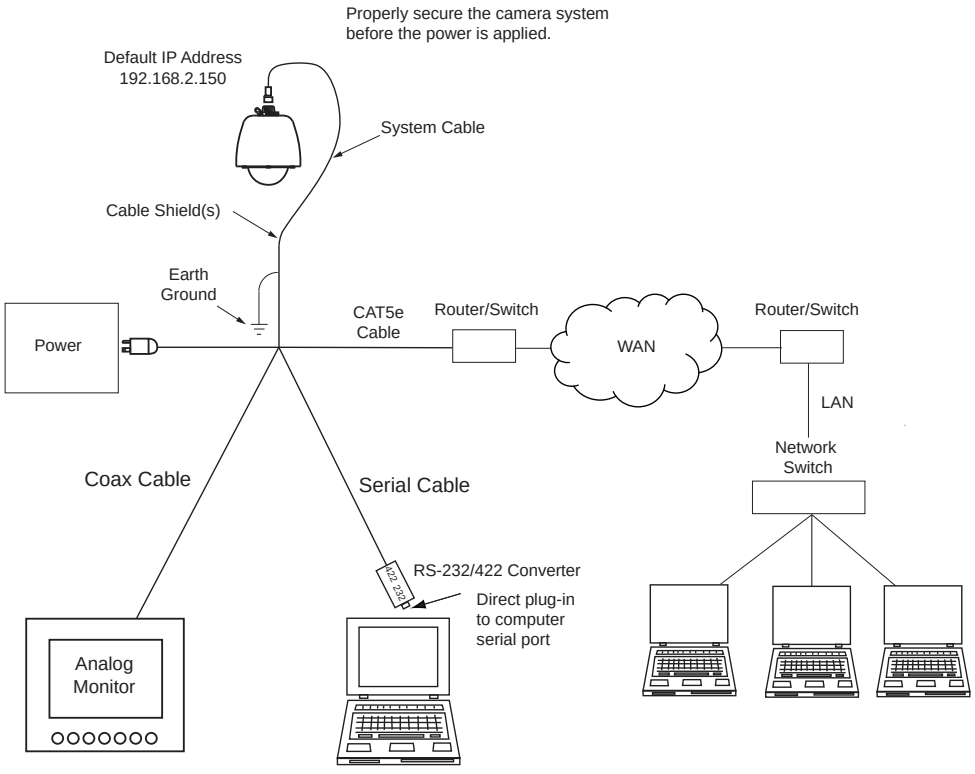


Figure 2. Interconnection Diagram, Analog and IP Output

2.1 System Cable Requirements

To build the Camera system cable CohuHD recommends:

- For Ethernet: CAT5e or better cable is recommended. For distances up to a maximum of 100 meters (328 feet), use CAT5e cable with four pairs of copper wire, 24 AWG.
- For Analog Video: The coax for analog video should be rated at 75 ohms, and should not exceed a maximum attenuation of 6dB at 10MHz for the length of coax required. For example, Belden 9221 miniature coax is a small, extremely flexible, 75 ohm coax that has an attenuation of 2.2dB per 100 feet. It should never be used for distances longer than 270 feet ((6dB / 2.2dB) x 100ft. = 272 feet). An excellent mid range coax would be the Belden 8241F (RG-59/U type with 100% copper core), with an attenuation of 0.9dB per 100 feet, or a maximum recommended distance of 650 feet. For longer cable runs, the Belden 8238 (RG-11/U type) has an attenuation of 0.7dB per 100 feet, which would allow for a maximum cable length of over 850 feet. There are triaxial cables available that can accommodate even longer cable distances, but a video cable equalizer or fiber optics may prove to be more cost effective as a long distance solution.
- For Data: Shielded, two twisted pair data cable is recommended. For lower baud rates (9,600 or less), the Belden 8723 shielded cable is usually suitable for distances up to 750 feet. For longer cable runs, and/or faster baud rates, a cable with a lower capacitance per foot should be selected. The Belden 8162 (12.5pf/ft. capacitance), would be suitable for distances well in excess of 1,000 feet at baud rates up to 115KB.
- For Power: Three wires, insulated for 300 V minimum, 18 AWG cord for power. Use for distances up to maximum 750 feet (230 m) for 115 V AC cables. Use for distances up to a maximum of 80 feet (29 m) for 24 V AC cables.

When wiring to the Ethernet pins, be sure to consider whether they should be wired for the NIC in a PC or for system connections to a hub, switch, router, or similar device. See tables 1, 2.

Table 1. Ethernet Cable Wiring to a Hub, Switch, or Router (Straight Wiring)

Ethernet Function	Camera Connector Ethernet Pins	Corresponding RJ-45 Ethernet Pins
Tx+	D	1
Tx-	E	2
Rx+	F	3
Rx-	H	6
This Ethernet wiring is intended to connect directly to a hub, switch, or router. For connection directly to a PC it will be necessary to use either a crossover cable or a crossover adapter. See table 2.		

Table 2. Ethernet Cable Wiring to a PC (Crossover Wiring)

Ethernet Function	Camera Connector Ethernet Pins	Corresponding RJ-45 Ethernet Pins
Tx+	D	3
Tx-	E	6
Rx+	F	1
Rx-	H	2
This Ethernet wiring is intended to connect a Camera to the NIC card in a PC.		

In the 3920HD/3920SD series Cameras the RS-422 interface is used for sending and receiving serial data. Therefore, a RS-232/422 converter should be used between the Camera and a computer. Figure 3 shows a typical RS-232/422 converter from B&B that could be used with 3920HD/3920SD. Table 3 shows cable wiring between the Camera and a converter.

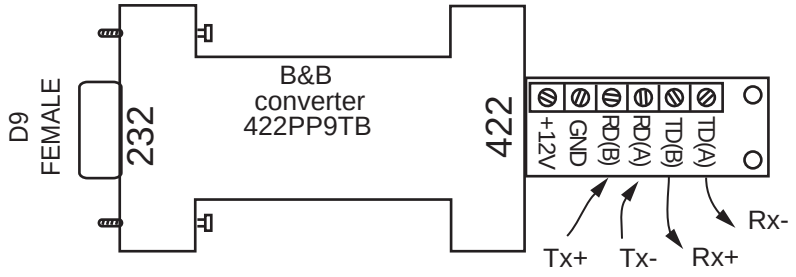


Figure 3. Typical RS- 232/422 Converter

Table 3. RS-422 Cable Wiring to B&B Converter

Camera Side		Converter Side
RS-422 Camera	**Camera Connector Pins**	**RS-422 Device**
Rx+	M	TD(B)
Rx-	N	TD(A)
Tx+	S	RD(B)
Tx-	R	RD(A)

Alarm I/O (Future)

The 3920HD and 3920SD camera systems support three alarm I/O channels identified as Alarm1 I/O, Alarm2 I/O, and Alarm3 I/O in the System Cable diagram. These three alarm channels are software configurable as inputs or outputs and are active-low referenced to the Alarm/Data Gnd pin. When configured as an input, connecting the Alarm I/O pin to the Alarm/Data Gnd pin through an external switch or relay activates the alarm input. When configured as an output, the Alarm I/O pin provides a low resistance circuit to the Alarm/Data Gnd pin when activated. The Alarm I/O output supports DC loads only with a maximum voltage of 50 V DC and a maximum current of 0.5 A.

2.2 18-pin MS Connector and Its Mating System Cable Connector

All system electrical connections for the 3920[HD]/3920[SD] series route through an MS-type metal connector installed in the dome housing. The connector can be wired for 115 V AC or 24 V AC operation.

A mating connector is supplied for making system interconnections.

Figure 4 is the pin location diagram of the dome connector viewed from the mating side. The view is identical to the wiring view of a mating connector (supplied) for the system cable. See figure 5 for the mating connector. Figure 6 and 7 show pin functions of the connector for 115 V AC and the 24 V AC. Those functions are identical to the corresponding pin functions of the mating system cable connectors.

Figure 4. Pin Location Diagram.
MS type Connector
(CohuHD p/n 1310230-017)
View from the front (mating) side

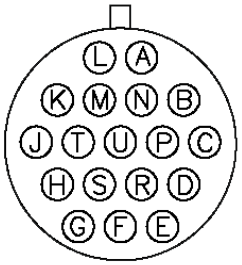


Figure 5. Pin Location Diagram.
MS type Mating Cable Connector
(CohuHD p/n 1310230-011)
View from the back (wiring) side

PIN	SIGNAL
	115V AC
D	Ethernet Tx+
E	Ethernet Tx-
F	Ethernet Rx+
H	Ethernet Rx-
L	Composite Video Out
A	Video Return
P	Alarm/Data Gnd
C	Alarm1 In/Out
J	Alarm2 In/Out
K	Alarm3 In/Out
M	RS-422 Rx+
N	RS-422 Rx-
S	RS-422 Tx+
R	RS-422 Tx-
G	AC GND
B	SPARE
U	115 VAC HI
T	115 VAC LO

Figure 6. MS (Metal) Connector Pinouts for 115V AC

PIN	SIGNAL
	24V AC
D	Ethernet Tx+
E	Ethernet Tx-
F	Ethernet Rx+
H	Ethernet Rx-
L	Composite Video Out
A	Video Return
P	Alarm/Data Gnd
C	Alarm1 In/Out
J	Alarm2 In/Out
K	Alarm3 In/Out
M	RS-422 Rx+
N	RS-422 Rx-
S	RS-422 Tx+
R	RS-422 Tx-
G	AC GND
B	24 VAC HI
U	SPARE
T	24 VAC LO

Figure 7. MS (Metal) Connector Pinouts for 24 V AC

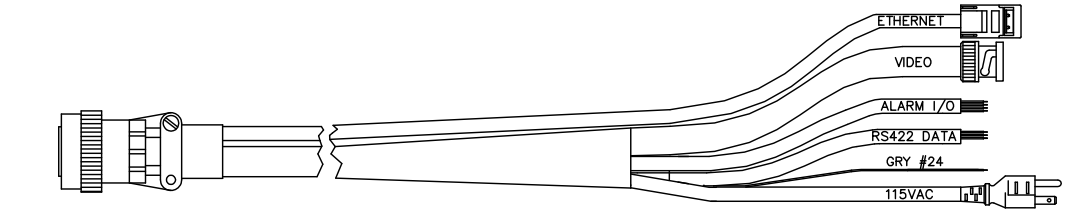
2.3 CohuHD Manufactured System Cables

CohuHD manufactured cables are available for 3920HD/3920SD series Cameras operating from 115 V AC power or 24 V AC with MS connectors. See table 4. Cables are made with either stripped (prepared) leads or with various combinations of connectors and a RS-232/422 converter. “Stripped” in the tables indicates that the wire leads are stripped and pre-tinned with solder for attachment to a terminal strip or similar device.

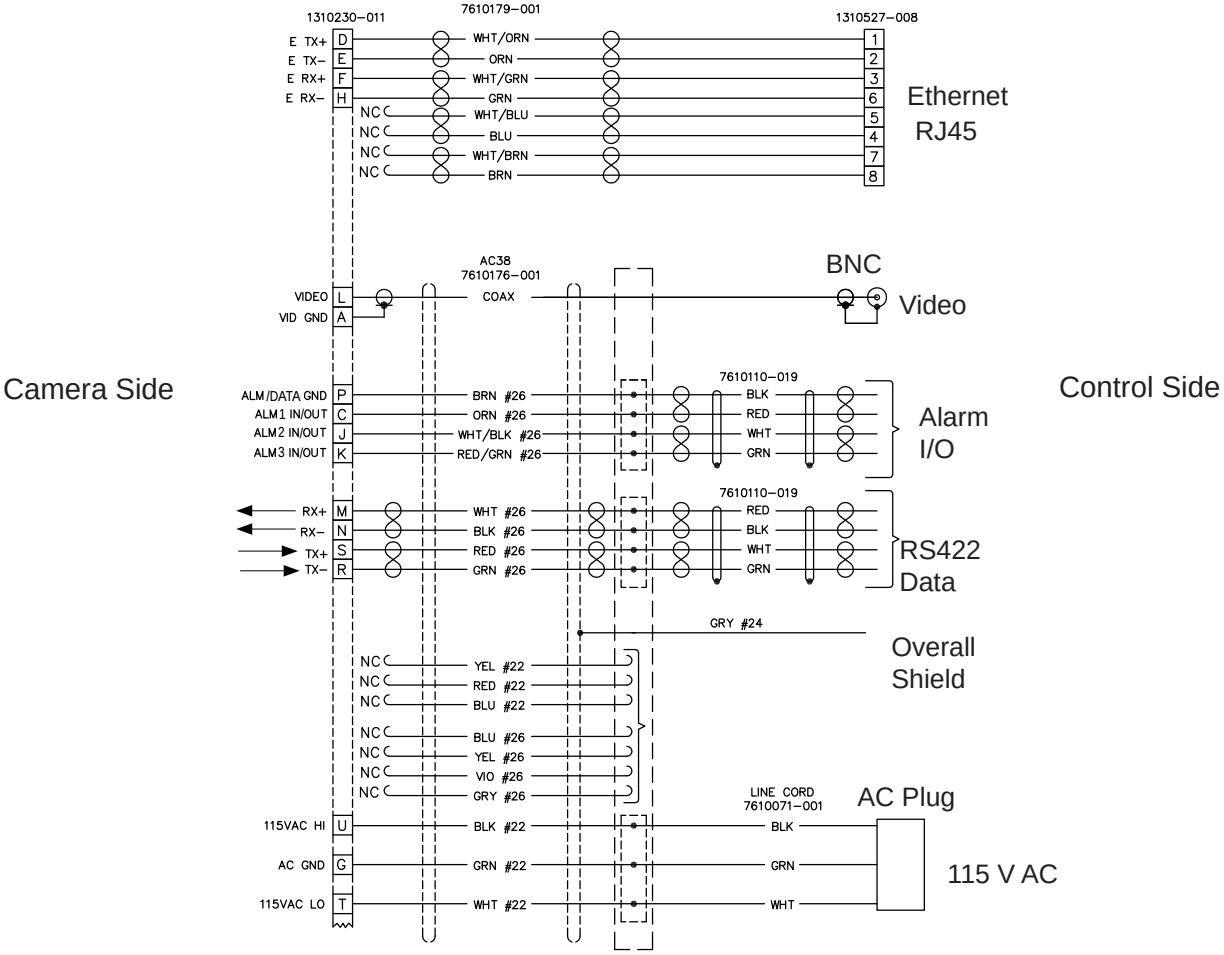
Maximum cable length for Cameras with operating power 24 V AC is 80 feet (29 meters). The length limitation is due to voltage drop in the wires. Maximum cable length for Cameras with operating power 115 V AC is 328 feet (100 meters). This length limitation is due to Ethernet signal degradation which increases with the cable length. For Ethernet cables longer than 100 m (328’) an Ethernet extender may be required.

NOTE: The maximum recommended cable length for Ethernet is 100 m (328’). However, other factors may reduce the distance Ethernet can be successfully used, such as EMI from other sources.

Figures 8 and 9 show two versions of the MS system cables: CA252S for 115 V AC operating power and CA255S for 24 V AC power.

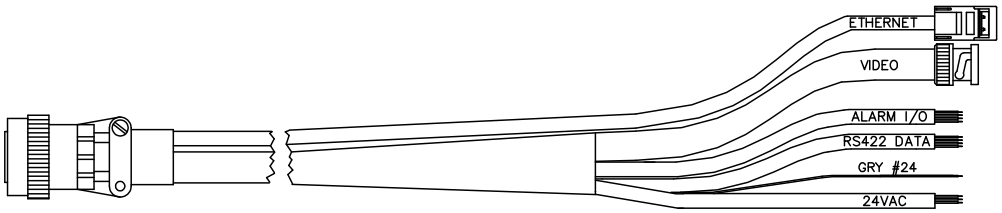


MS Connector

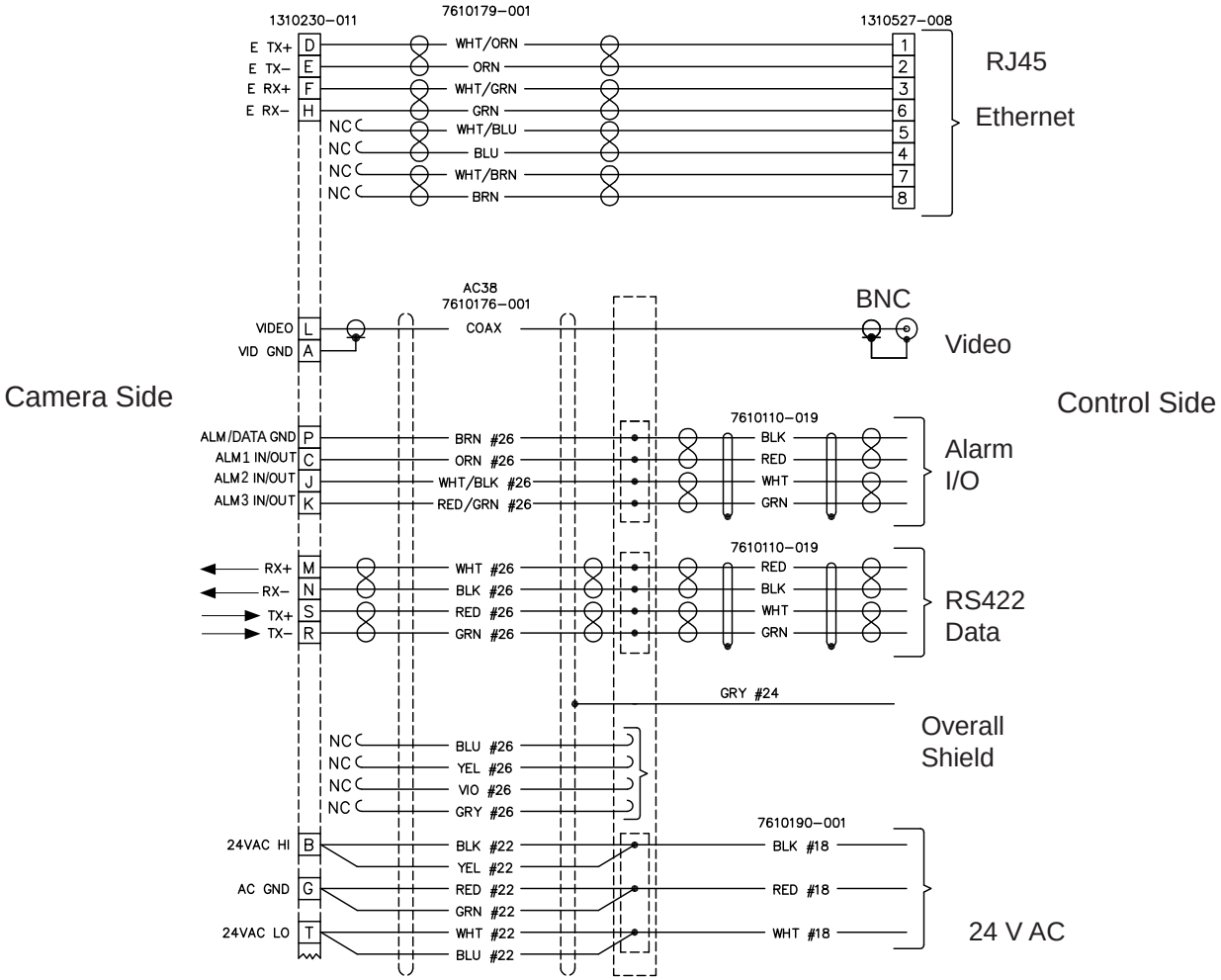


Note: NC = No Connection

Figure 8. CohuHD Manufactured System Cable CA252S: MS, 115 V AC



MS Connector



Note: NC = No Connection

Figure 9. CohuHD Manufactured System Cable CA255S: MS, 24 V AC

Table 4. CohuHD Manufactured Cables CA252 and CA255 with MS Connectors

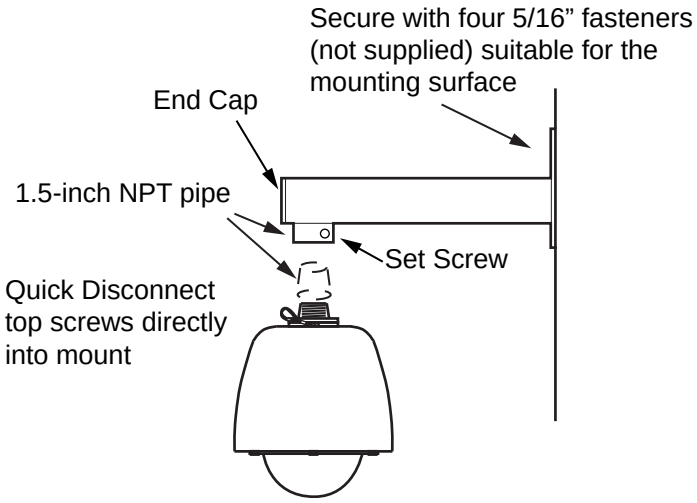
Cable	Volt AC	Camera Side Connector	IP Video (Ethernet) Connection	Power Connection	Analog Video Connection	Serial Data Connection (RS422)	Alarm	Max Distance feet (meters)
CA252A	115	18-pin MS Style CohuHD p/n 1310230-011	stripped leads	stripped leads	-	–	–	328’ (100 m)
CA252B	115		RJ45	115 V AC Plug	-	–	–	328’ (100 m)
CA252P	115		stripped leads	stripped leads	stripped leads	stripped leads	–	328’ (100 m)
CA252Q	115		RJ45	115 V AC Plug	BNC	stripped leads	–	328’ (100 m)
CA252R	115		stripped leads	stripped leads	stripped leads	stripped leads	stripped leads	328’ (100 m)
CA252S	115		RJ45	115 V AC Plug	BNC	stripped leads	stripped leads	328’ (100 m)
CA252H	115		RJ45	16-pin AMP Style Connector, CohuHD p/n 1310306-010				328’ (100 m)
				115V AC	Analog Video Signal	Serial Data Signal	-	
CA252M	115		RJ45	115 V AC Plug	BNC	RJ45	stripped leads	328’ (100 m)
CA252T	115		RJ45	115 V AC Plug	BNC	converter RS422 to RS232	stripped leads	328’ (100 m)
CA255A	24		stripped leads	stripped leads	-	–	–	80’ (29 m)
CA255B	24		RJ45	stripped leads	-	–	–	80’ (29 m)
CA255R	24		stripped leads	stripped leads	stripped leads	stripped leads	stripped leads	80’ (29 m)
CA255S	24		RJ45	stripped leads	BNC	stripped leads	stripped leads	80’ (29 m)
CA255M	24		RJ45	stripped leads	BNC	RJ45	stripped leads	80’ (29 m)
CA255T	24		RJ45	stripped leads	BNC	converter RS422 to RS232	stripped leads	80’ (29 m)

Note: “Stripped” in the table indicates that the wire leads are stripped and pre-tinned with solder for attachment to a terminal strip or similar device.

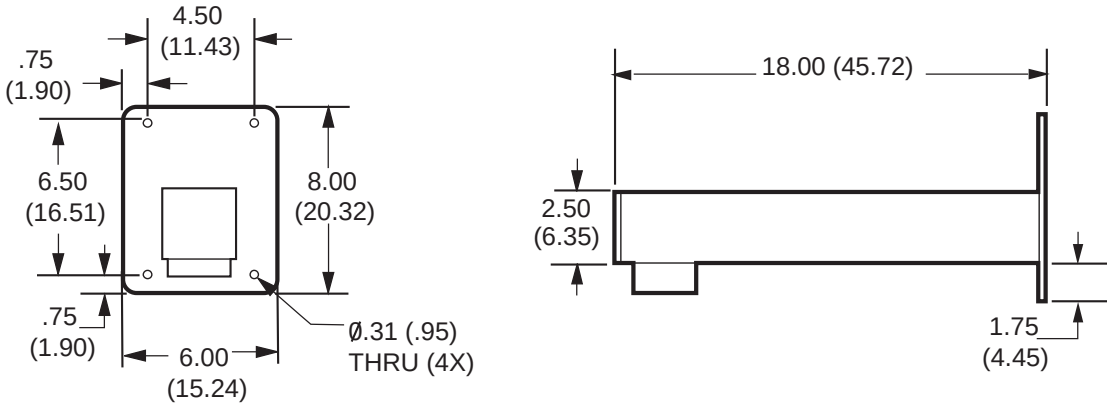
3.0 Mounting Methods

The dome camera system is designed for indoor/outdoor installation. The following mounts are recommended by CohuHD for 3920^{HD}/3920^{SD} series installation and can be purchased with the camera.

3.1 Wall Mount



Wall Mount Installation Diagram

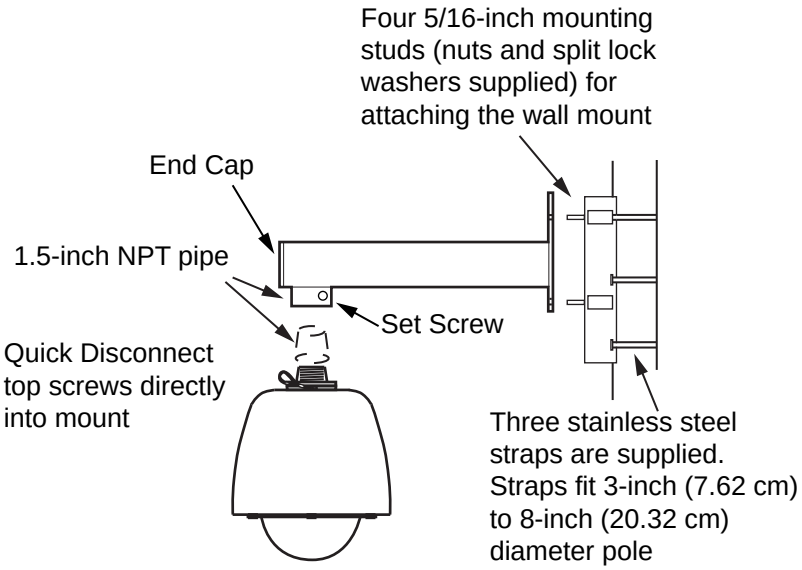


Note: All dimensions in inches (cm)

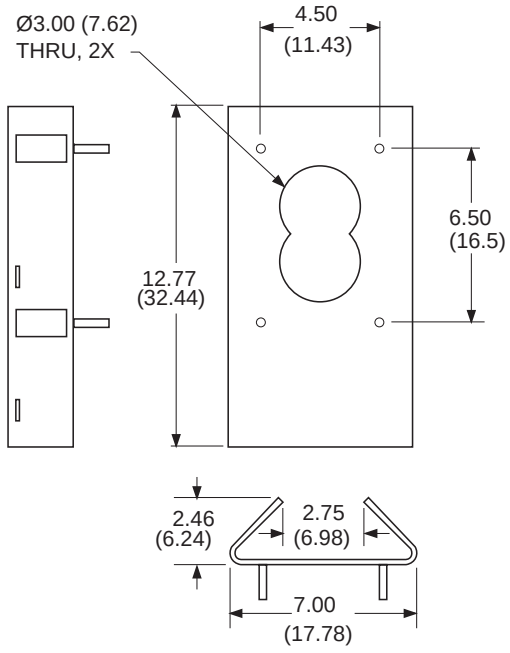
Wall Mount Dimension Drawing

3.2 Pole Mount

The pole mount adapter is designed for use with the wall mount (see section 3.1 for a wall mount) .



Pole Mount Installation Diagram



Note: All dimensions in inches (cm)

Pole Mount Adapter Dimension Drawing

3.3 Installation Procedures

WARNING:

It is the user's responsibility to ensure that the mounting methods are safe and adequate for the location.

For installation:

- Use stainless steel hardware to fasten the Camera and mounting brackets. This will ensure the resistance of fasteners to corrosion.
- Use anti-seize compound in order to prevent galling on the threads.
- Use gasket materials if needed.
- Use a sealant wrap on the Camera waterproof connectors and its mating system cable plugs for additional protection against moisture in severe conditions.

Provisions must be made for routing the system cable up to the Camera location:

- Pole Mounting: if the cable routes up through the pole, support the cable inside the pole so that the full cable weight load is not solely at the Camera connector.

The sequence of installation can vary from site to site:

- Verify that the system cable can be routed to the location of the mounting assembly.
- If installing the Camera to:
    - The wall surface, use the mount as a template. Mark and drill holes in the mounting surface. Drill a hole for the cable if required.
    - The pole, position the pole mount on the pole and secure with the stainless steel mounting straps (supplied). Use a flat blade screw driver or 5/16 socket (not supplied) to tighten strap screws.
- Remove the end cap on the wall mount and route the system cable down into the arm. Reinstall the end cap.
- If installing the Camera to:
    - The wall surface, position the wall mount over the mounting holes. Secure with four 5/16-inch fasteners (not supplied).
    - The pole, attach the wall mount to the studs on the pole mount and secure with the 5/16-inch nuts and washers (supplied).

    NOTE: If you install outdoors, seal the fastener holes with an appropriate sealant to prevent water damage. Apply the sealant between the mount and the mounting surface.
- Install the dome ***(Instructions on the Quick Disconnect disassembling/reassembling).*** See figure 10:
    - Remove the safety strap from the top half of the Quick Disconnect (the half with the threaded nipple attached). Use 3/32" hex key.
    - Loosen two lock bolts on the Quick Disconnect with a 5/16" socket approximately 1/4 inch. Do not remove lock bolts. Separate the two parts of the Quick Disconnect by rotating approximately 1/16" turn CCW.
    - Apply anti-seize compound on Quick Disconnect nipple threads.

- Thread the Quick Disconnect nipple into the mounting arm and tighten with a strap wrench (not supplied).
- Tighten the set screw on the mounting arm securely.
- Route the system cable down through the nipple and attach the system cable plug to the dome connector.
- Orient the dome properly and attach it to the other half of the Quick Disconnect mounted to the arm by engaging the pins and rotating approximately 1/16” turn CW. Ensure that safety strap bolts are aligned after rotation. See picture below.
- Snug lock bolts to lock the top and bottom of the Quick Disconnect together. Do not over-tighten.
- Reattach the safety strap.

NOTE: The top part of the Quick Disconnect is intended to remain in place after installation. If you need to remove the Camera, reverse the above process.

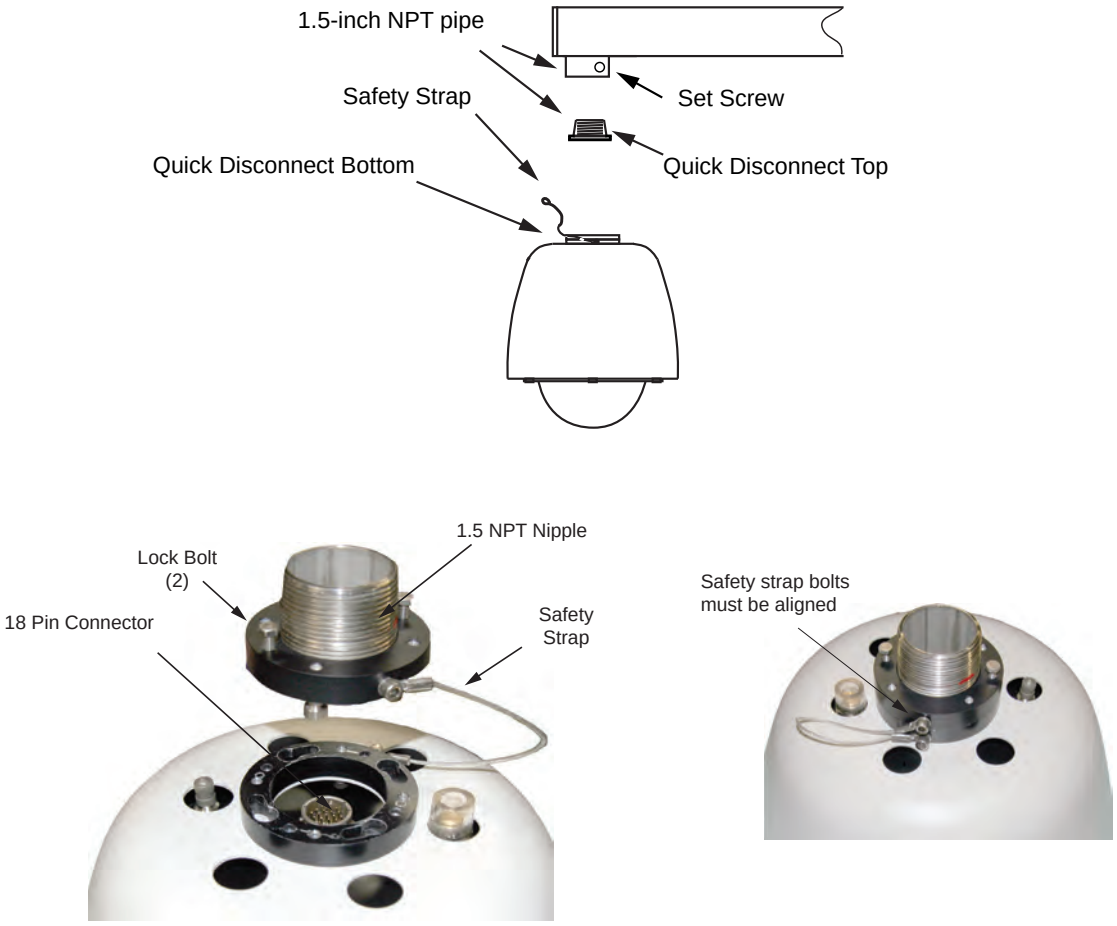
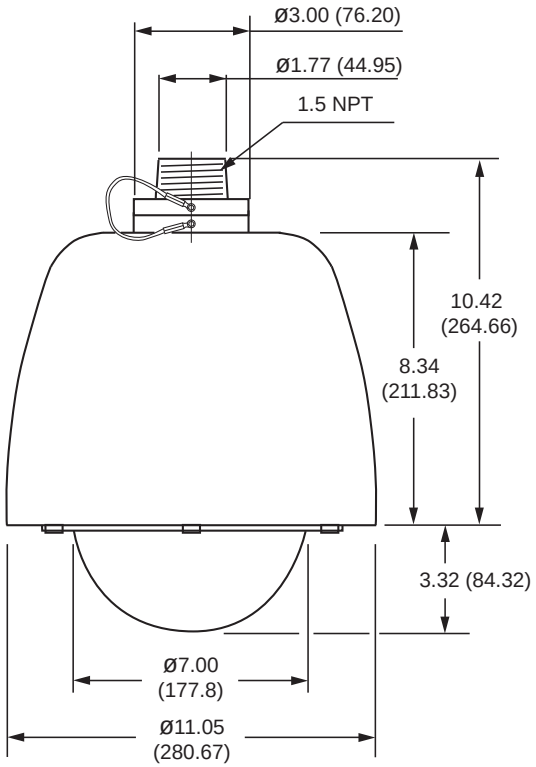


Figure 10. Quick Disconnect Assembly



Note: All dimensions in inches (mm).
NPT - National Pipe Thread.

3920HD/3920SD Series Dome Dimensions

4.0 Quick Check

4.1 IP Control and Viewing of Camera

Installation and testing of the Camera can be performed with the built-in Helios Web Interface application. The Helios Web Interface was designed to work with Internet Explorer (IE) 8. Microsoft ActiveX® is required to view and control video in the web interface.

- Allow the Camera to install Signed ActiveX® control before connecting to the Camera.

For more information on ActiveX® control installation see the operation manual 6x-1090, Appendix 1. The manual is shipped with the Camera.

For information on computer requirements see section 1.3 of the manual listed above.

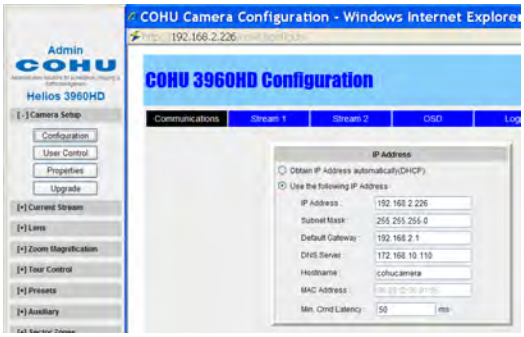
4.2 Factory Default IP Address and Settings. Assigning the new Camera IP Address

The camera is shipped with:

- IP Address - 192.168.2.150
- Subnet mask - 255.255.0.0
- Gateway - 192.168.2.1

No two devices on a single Ethernet network can have the same IP address. Use the following steps to change a Camera IP address before a second camera is added to the subnet.

- Set your computer IP address to the same subnet as the Camera IP address. See the operation manual 6x-1090, section 1.6.
- Change the Camera address. The Camera address can be changed manually or through a Dynamic Host Configuration Protocol (DHCP) server. See the operation manual 6x-1090, section 2.2.1.1.
    - Click the Camera Setup button.
    - Click the Configuration button.
    - Click the Communication tab.



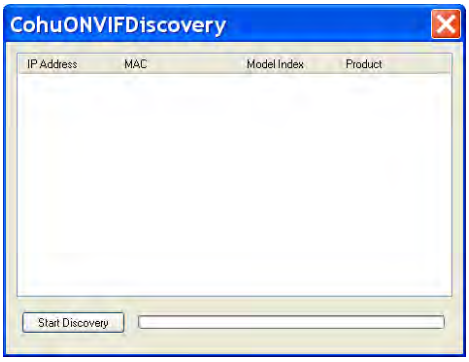
The Communications tab is used for performing network configuration of the Camera. Changes to this tab can only be made by the “Admin” account. Care should be taken when modifying parameters on this page as the changes might make the Camera inaccessible through the network. Consult with your network administrator before starting to assign new network settings to ensure that your camera won’t conflict with other devices.

- Write down the new Camera address to make the camera easy to find later. If the camera IP address becomes lost, use the CohuONVIFDiscovery software to find the camera on a network. The software is available as a free download at *http://www.CohuHD.com/content/downloads.* Under Software & Protocol Downloads see Setup & Test Applications. At Helios ONVIF Discovery Tool click “download here.”

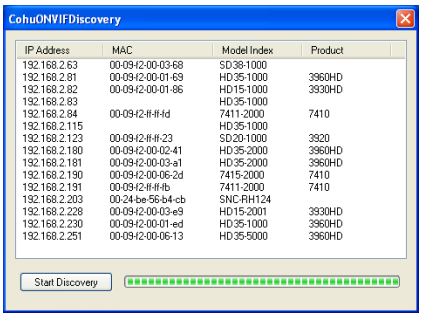
4.3 Using the Helios CohuONVIFDiscovery Software to Discover the Camera

- Download the software from the link below: *http://www.CohuHD.com/content/downloads.* Under Software & Protocol Downloads see Setup & Test Applications. At Helios ONVIF Discovery Tool click “download here.”
- Run the CohuONVIFDiscovery.exe file. Click to start it.
- The CohuONVIFDiscovery window will be displayed.

NOTE: Auto discovery feature uses network multicast packets and may not work through network routers.



- Click on the “Start Discovery” button. A list of Cameras will be automatically displayed.



- Select your camera network settings.

4.4 Checkout Procedure

When the power is applied to the Camera the initialization process begins. All CohuHD Cameras initialize on power-up using stored default parameters within the camera’s non-volatile memory. The default IP address assigned to the Cameras at the factory is 192.168.2.150.

If the Camera does not operate when the power is applied, check for:

- Proper input voltage
- Proper cable connections

After communication with the Camera has been established and video stream has been started, various functions should be tested to verify proper operation.

Check all the momentary functions: zoom, pan, and tilt. Latch commands also should be tested: lens fast, manual focus, and manual iris. Several presets should be set and then recalled to verify their operation. After presets are established the tour function may be tested for proper operation. Once it has been verified that the Camera is operating properly it can be released for use.

For more detailed information on the operation and configuration see the operation manual 6x-1090. Contact the Customer Service Department for technical assistance.

5.0 Maintenance

The system is intended for long-term unattended use and the maintenance requirements are minimal:

- Clean exterior as needed.
- Clean the clear dome on the Camera as needed.
- Check pressure periodically. Occasional pressurization of the Camera may be required. See section 5.1 for more details. Pressure can be checked remotely with CohuHD protocol by enabling the on screen maintenance mode.
- Periodically check cables for deterioration and connectors for corrosion.

5.1 Housing Pressurization

Before shipping from the factory, dry packs of desiccant are secured inside the Camera housing. The housing is then sealed and purged with dry nitrogen to remove moist air from inside the housing. The purging process provides an internal relative humidity of five percent or less. The Camera housing is then pressurized to approximately 3-5 psi (pounds per square inch) and tested for leaks.

If the Camera housing pressure drops to zero over a period of a few weeks, it is likely that a seal is leaking and the Camera should be returned for servicing.

3920^{HD}/3920^{SD} Series Dome

5.1.1 Schrader Valve

A Schrader valve is used for pressurization of the housing with dry nitrogen.

5.1.2 Pressure Relief Valve

The 5 psi pressure relief valve is used to limit the maximum pressure inside the dome.

IMPORTANT: Check the camera pressure prior to installation if the camera was exposed to certain conditions such as high temperature, high altitude, etc. Due to such conditions the pressure inside the camera may increase. The pressure relief valve opens when pressure rises above 5 psi (34 kPa), allowing excess internal pressure to bleed off. After the camera returns to normal conditions, the internal pressure should be checked and the camera should be pressurized with dry nitrogen to bring the pressure back to approximately 3.5 psi +/- .5 psi. See section 5.1.3 for pressurization procedure.

5.1.3 Pressurizing Procedure

The following items are required for pressurizing:

- a tank of dry nitrogen with a regulator
- a hose with a strait air chuck to connect to the Schrader valve

NOTE: Preferred gas for pressurization is dry nitrogen. Argon is an acceptable substitute. Do not use compressed air. It may contain oil and other contaminants.

WARNING:
Pressurizing the unit above 5 psi may cause the acrylic dome to explode.

Below are steps for recharging the Camera:

1. Set the regulator gauge to approximately 5 psi. **IMPORTANT:** a regulator setting above 5 psi may damage the relief valve. (A regulator kit ER2914 is available for purchase.)
2. Remove the plastic tubing from the pressure relief valve if purge is required.
3. Remove the cap from the Schrader valve, place the air chuck on the Schrader valve and fill the housing with nitrogen.
4. Carefully lift the poppet on the pressure relief valve and purge for approximately two minutes if purge is required.

CAUTION:
Do not use a sharp object to open the pressure relief valve.
Use care to avoid damage or contamination of the valve seat.

5. Remove the air chuck and verify with a pressure gauge that the pressure is 3.5 psi +/- .5 psi.

IMPORTANT: The dome is to be pressurized to 3.5 psi +0/- .5 psi. Exceeding these pressure requirements may damage the relief valve.

6. Firmly install the cap on the Schrader valve to get a good seat. Cap is required for a proper seal.
7. Install the tubing back on the pressure relief valve if it was removed.

6.0 Warranty

Please refer to the CohuHD website for product warranty information:

http://www.CohuHD.com/warranty/WarrantyStatement.pdf.

Revision History		
Revision	Date	Comments
Rev A	6/28/2011	Initial release. ECO 031017
Rev B	7/15/2014	• the manual is revised to change company name