6000W Generator - Water Cooled Diesel Engine - 30' Telescoping Tower Instruction Guide

The WCDE-6-4X2MP-PTZ-2TB-W4G mobile security tower from Larson Electronics is a towable surveillance package powered by a water-cooled diesel engine turning a 6,000 watt generator. There are four, PoE-powered infrared IP cameras mounted on this unit, supported by a 2TB NVR at the base of the tower, a professional grade router with an external antenna and remote viewing via Verizon 4G service (contract, additional monthly fee). The entire system can run continuously for 60+ hours on a full tank of fuel.

TOWING

Never tow your security tower with the mast in the upright position. Be sure the trailer hitch is fully engaged with the ball hitch and in the locked position, and that both towing chains are securely attached to the vehicle you are towing the security tower with. Always remain aware of the location of the trailer when turning, particularly when reversing. A standard two-inch ball coupling and two standard safety chains allow for easy hookup and towing.

SETUP INSTRUCTIONS

- Check fluids before starting the generator.
- Always park your mobile security tower on as flat a spot as possible.
- Extend the 4 outriggers to level and support your security tower before raising the mast, and make sure they are all in contact with the ground.
- There are 2 hand crank winches on this unit, with the bottom one mounted on the trailer being used to raise and lower the mast, and the top one mounted on the mast itself being used to extend and retract the mast.
- The mast has a locking pin near the base of the mast that automatically engages when the mast reaches the upright position. This must be disengaged before lowering the mast back to the horizontal position.
- DO NOT raise the mast in excessively windy conditions. The mast is rated to withstand winds up to 44mph when fully extended.

CONTROLS

The operating system for this unit is a centrally located control panel within the security tower enclosure. This houses the ignition, the fuel gauge, a voltage display, an hour meter for monitoring total runtime, a low oil pressure warning light, a high coolant temperature warning light, and the circuit breakers. There are also two external receptacles adjacent to the control panel on the front of the trailer. Monitor these periodically to ensure the security tower is running sufficiently and to watch for signs of necessary maintenance.

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-800-369-6671 FOR FURTHER ASSISTANCE.

PLEASE VISIT LARSONELECTRONICS.COM FOR **WARRANTY** AND **RETURN** INFORMATION.

IDCMR-IP-POE-PTZ-20X PTZ Dome Camera Installation Guide



PLEASE READ THIS MANUAL BEFORE USING YOUR CAMERAS, and always follow the instructions for safety and proper use. Save this manual for future reference.

CAUTION

FCC Caution: *To assure continued compliance, use only shielded interface cables when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.*

NOTE

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.

LEGAL NOTICE

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The recording, transmission, or broadcast of any person's voice without their consent or a court order is strictly prohibited by law.

Observint makes no representations concerning the legality of certain product applications such as the making, transmission, or recording of video and/or audio signals of others without their knowledge and/or consent. We encourage you to check and comply with all applicable local, state, and federal laws and regulations before engaging in any form of surveillance or any transmission of radio frequencies.

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Regulatory information

FCC information

FCC compliance: This equipment has been tested and found to comply with the limits for 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.

FCC conditions

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

Preventive and Cautionary Tips

Before connecting and operating your cameras, please be advised of the following:

- Ensure environmental conditions meet factory specifications.
- Major shocks or jolts to the unit as a result of dropping it may cause damage to the sensitive electronics within the unit.
- Use the device in conjunction with an UPS if possible.

Safety Instructions

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into Warnings and Cautions:

- **Warnings**: Neglecting any of the warnings may cause serious injury or death.
- **Cautions**: Neglecting any of the cautions may cause injury or equipment damage.

Warnings

- All the electronic operation should be strictly compliance with the electrical safety regulations, fire prevention regulations and other related regulations in your local region.
- Do not connect several devices to one power adapter as adapter overload may cause over-heat or fire hazard.
- Please make sure that the power has been disconnected before you wire, install or dismantle the camera.

- If smoke, odors or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.
- If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the speed dome yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)

Cautions

- Do not drop the dome or subject it to physical shock, and do not expose it to high electromagnetism radiation. Avoid the equipment installation on vibrations surface or places subject to shock (ignorance can cause equipment damage).
- Do not place the dome in extremely hot, cold, dusty or damp locations, otherwise fire or electrical shock will occur. The operating temperature should be -22 °F ~ 149 °F (-30 °C ~ 65 °C).
- The dome cover for indoor use shall be kept from rain and moisture.
- Exposing the equipment to direct sun light, low ventilation or heat source such as heater or radiator is forbidden (ignorance can cause fire danger).
- Do not aim the speed dome at the sun or extra bright places. A blooming or smear may occur otherwise (which is not a malfunction however), and affecting the endurance of sensor at the same time.
- Please use the provided glove when open up the dome cover, avoid direct contact with the dome cover, because the acidic sweat of the fingers may erode the surface coating of the dome cover.
- Please use a soft and dry cloth when clean inside and outside surfaces of the dome cover, do not use alkaline detergents.
- Please keep all packaging for future use. In case of a failure, use the original packaging to return the camera to the factory. Transportation without the original packaging may result in damage to the camera and incur additional costs.

Read these instructions and keep them in a safe place for future reference.

- Please refer all work related to the installation of this product to qualified service personnel or system installers.
- Do not operate the camera outside of its specified temperature, humidity or power source ratings.
- Install the unit away from heat sources such as radiators, heat registers and stoves.
- Installation of the unit near consumer electronics devices, such as stereo receiver/amplifiers and televisions, is permitted as long as the air surrounding the terminal does not exceed the above mentioned temperature range.
- Handle the camera with care. Do not drop or shake, as this may damage it.
- Do not use strong or abrasive detergents when cleaning the surfaces of this product. When dirt is hard to remove, use a mild detergent and wipe gently.
- Save your system configuration.
- Distributing, copying, disassembling, reverse compiling, reverse engineering, and exporting, in violation of export laws, the software provided with this product is expressly prohibited.

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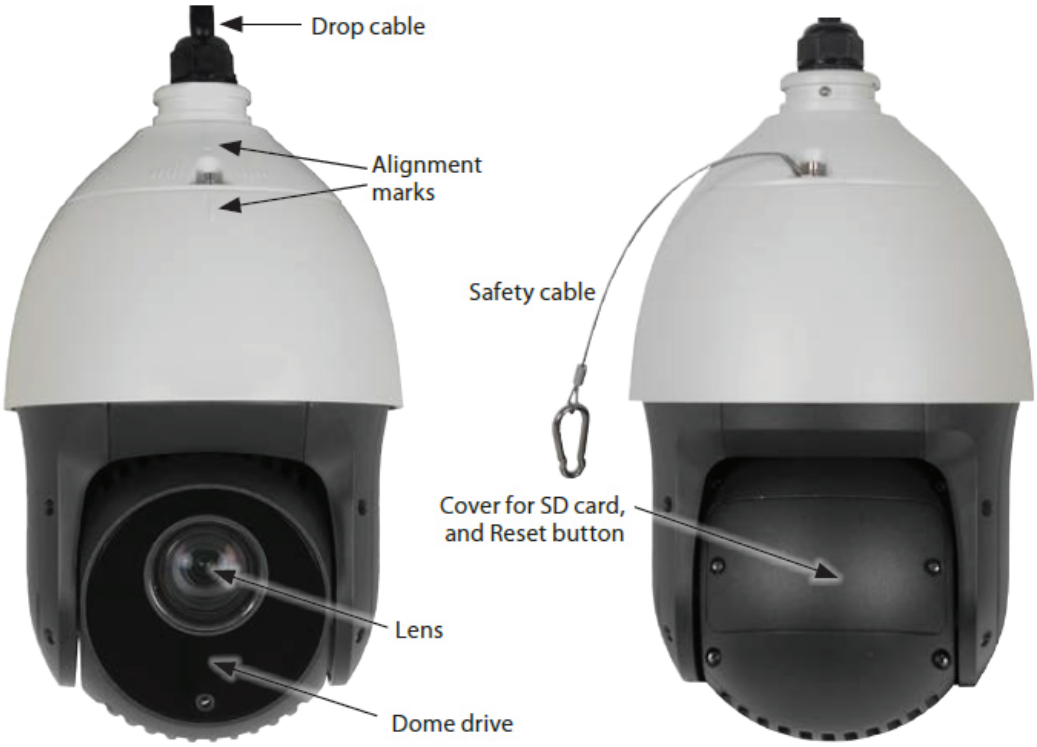
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NOTES

SECTION 1
Overview

Congratulations on purchasing your new IP PTZ camera! This installation guide includes procedures for installing and performing the initial setup of the camera.

The PTZ Dome Camera can capture high quality images in low light environment with its black anti-reflective glass. The black anti-reflective glass increase the luminousness for an IR reach of up to nearly 500 feet. Embedded with a 1/2.8'' progressive scan CMOS chip makes DWDR 2MP real-time resolution possible. With the 20× optical zoom Day/Night lens, the camera offers more details over expansive areas. This camera also features a wide range of functions, including intrusion detection, line crossing detection and audio exception, benefitting users with great improvement on security efficiency, more importantly, with key events / objects being recorded for further forensic needs.



1.1 Features

Basic functions

- High performance sensor, up to 1920 x 1080 resolution
- ±0.1° Preset accuracy
- ONVIF (Open Network Video Interface Forum), CGI (Common Gateway Interface), PSIA (Physical Security Interoperability Alliance), to ensure greater interoperability between different platforms and compatibility

- 3D intelligent positioning function
- Power-off memory function: restore PTZ & lens status after reboot
- IP66 compliant

Functions

- Detections: intrusion detection, line crossing detection, audio exception detection, motion detection
- Recording: edge recording, support smart search in smart NVR
- Support low bit rate, ROI

Camera function:

- Auto iris, auto focus, auto white balance, backlight compensation and auto day & night switch
- Min. Illumination: 0.02 Lux @ (F2.0, AGC ON) (Color), 0.002 Lux @ (F2.0, AGC ON) (B/W)
- Supports 8 privacy masks

PTZ function:

- 360° endless pan range and -15° ~ +90° tilt range
- 400°/s Pan Preset Speed and 200°/s Tilt Preset Speed
- 0.1° ~ 400°/s Manual Pan Speed and 0.1° ~ 200°/s Manual Tilt Speed
- 300 programmable presets; preset image freezing capability
- 8 patrols, up to 32 presets per patrol

Network function:

- H.264/ MJPEG video compression and the latest processing chip and platform
- Built-in web server
- Support Micro SD card local storage, up to 128GB
- Support up to 8 NAS storage; transmit videos from the SD card to the NAS after network recovery
- HTTPS encryption and IEEE 802.1X port-based network access control
- Support dual-stream; H.264/ MJPEG video compression; basic and advanced video configuration; real time video at 1080P
- Multiple network protocols supported: IPv4/IPv6, HTTP, HTTPS, 802.1X, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE
- 1 audio input and 1 audio output
- 2 alarm inputs and 1 alarm output, alarm linkage support preset, patrol, pattern, recording, relay output, upload center, etc.

IR function:

- 0 Lux minimum illumination
- Up to 492 ft IR distance
- IR light MTBF reaching up to 30,000 hours
- Smart IR mode

1.2 What's in the box

Your camera includes:

- PTZ camera assembly
- Pendant adapter
- Ethernet drop cable seal kit
- Hi-Power PoE injector
- Gloves
- Hex L-wrench
- Thread tape
- Quick installation guide (this document)



Pendant adapter

SECTION 2
Installation

Before you start

- Check the package contents and make sure that the device in the package is in good condition and all the assembly parts are included:
  - PTZ camera assembly
  - Pendant adapter
  - Thread tape
  - Hi-Power PoE injector
  - Gloves
  - Hex L-wrench
  - Quick installation guide (this document)
- Make sure the mounting surface and fasteners are strong enough to withstand at least 8 times the weight of the camera assembly and the mounting bracket.
- For cement walls, use an expansion screw to secure the mounting bracket.

CAUTION

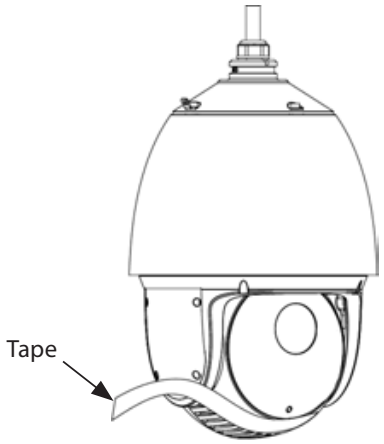
Do not carry the camera by the drop cable.



For outdoor installations, refer to "APPENDIX C Lightning and Surge Protection" on page 28 for additional installation considerations.

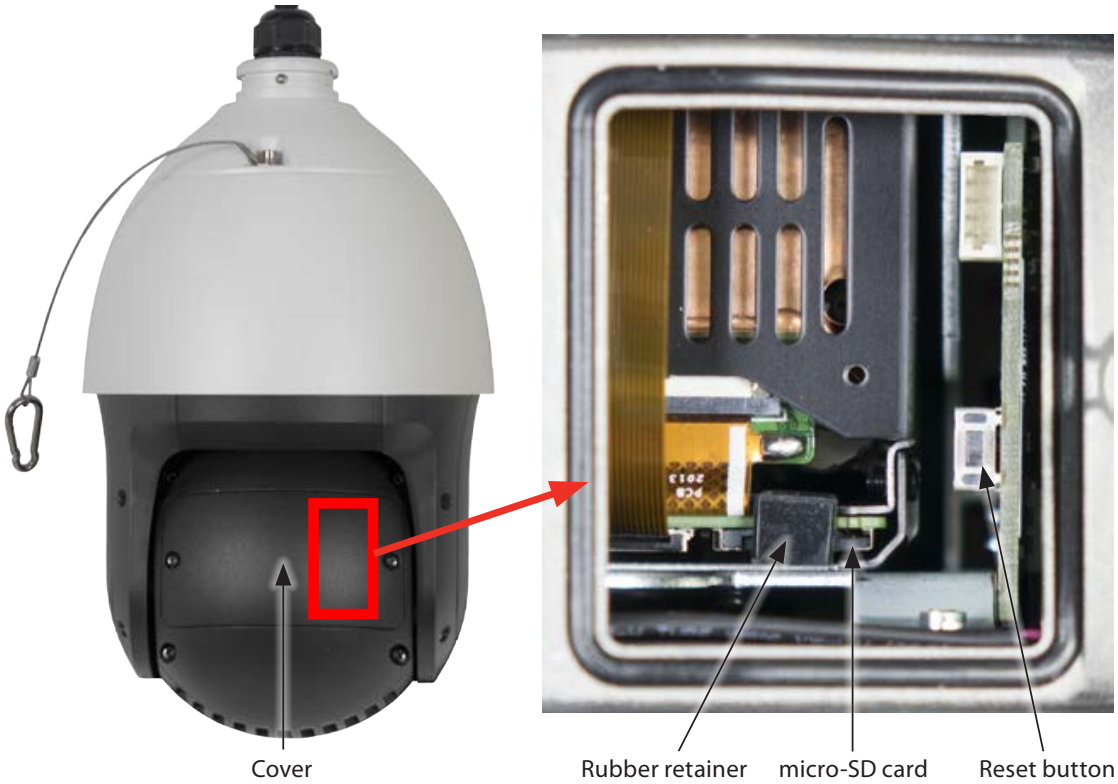
2.1 Remove the camera from the packaging

1. Remove the camera from the protective packaging.
2. Remove tape from the dome drive, if attached.



2.2 Install an micro-SD card in the camera

The micro-SD card in the provides in-camera (local) storage for log information and locally stored video and capture files. Cameras without an SD card cannot provide camera log information, which is valuable for maintenance purposes. Your camera will accommodate a micro-SD card with up to 128 GB of storage. The location of the micro-SD card slot is shown below.



1. Use a Phillips #2 screw driver to remove the back cover of the camera. See the photo above.
2. Insert the micro-SD card into the card slot until it clicks into place.
3. Pull the rubber retainer out and over the edge of the micro-SD card and PC board it attaches to.
4. Reattach the back cover.

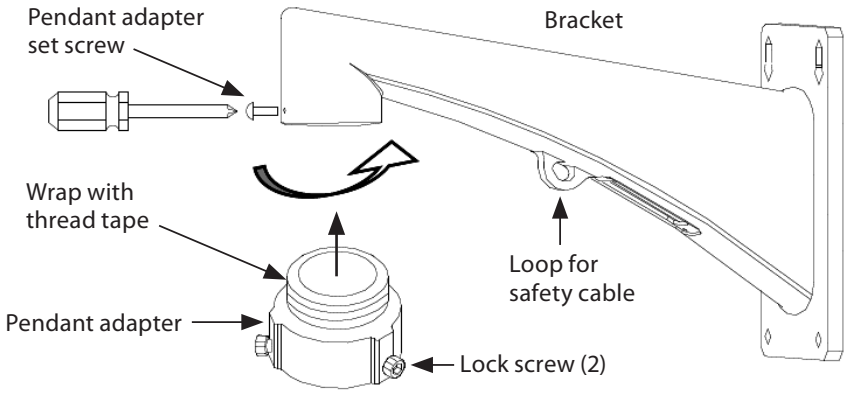
2.3 Camera wall mount installation

Following the instructions below to install the camera using the **Wall Mount Bracket**.

Instructions for mounting the camera with a **Pole Mount PTZ Bracket** or **Corner Mount PTZ Bracket** are very similar.

For these brackets, use the instructions below as a guide. .

1. Determine the best mounting screws and hardware to anchor the mounting bracket with the camera to the mounting surface. Use the following guidelines:
   - For cement wall mounting, use the expansion screw to anchor the bracket.
   - For wooden wall mounting, use self-tapping screw to anchor the bracket.
   - Make sure that the wall is strong enough to withstand more than **8 times** the weight of the camera and the bracket.
2. Using the mounting bracket as a template, mark the location of the mounting screw holes on the mounting surface. Also mark the location of a hole for the camera drop cable. The drop cable will be routed through the mounting bracket and through the mounting surface.
3. Drill holes in the mounting screws and hardware. Also, drill a 1½" diameter hole in the mounting surface for the drop cable.
4. Apply two wrap of the thread tape provided onto the treads of the pendant adapter (see below)

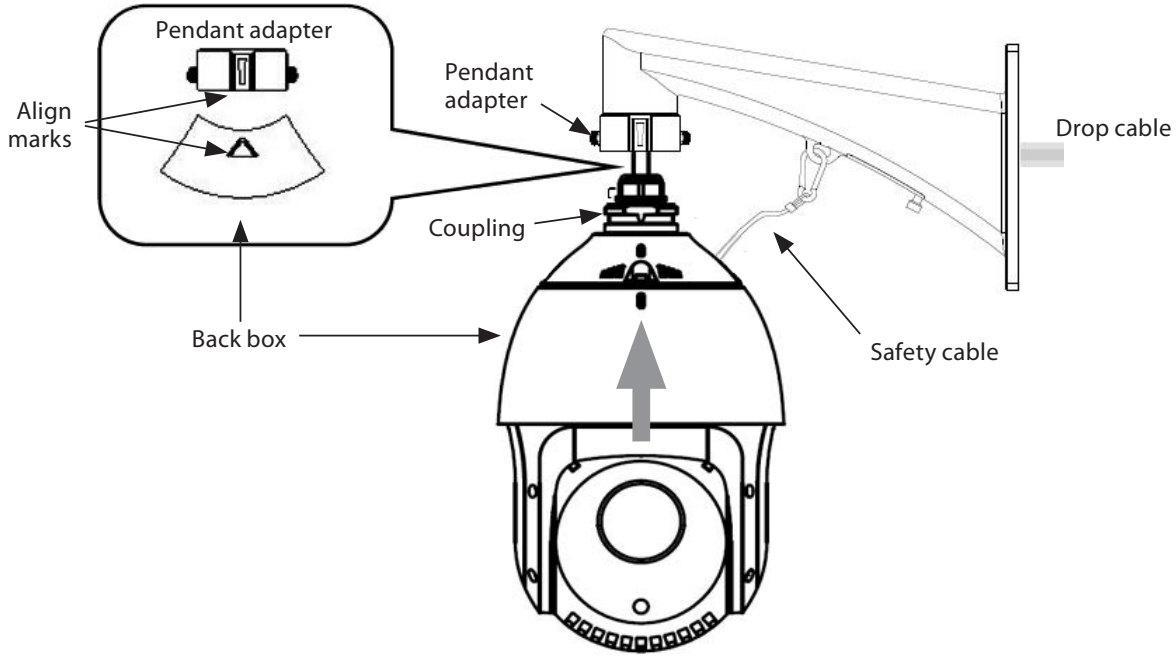


Attach pendant adapter to mounting bracket

5. Screw the pendant adapter onto the end of the mounting bracket. Tighten the set screw to secure the adapter to the bracket.

6. Clip the safety cable to the loop on the camera mounting bracket.

7. Route the camera drop cable through the mounting bracket, then clip the safety cable onto the loop in the mounting bracket.



8. Fit the camera coupling into the pendant adapter, then twist the camera to align the marks on the pendant adapter and the camera back box. See the figure above.

9. Tighten the two lock screws on the pendant adapter to secure the camera to the mounting bracket.

10. Feed the camera drop cable through hole drilled at the mounting location, then anchor the mounting bracket to the wall.

2.4 Ceiling mounting

Following the instructions below to install the camera using the **Ceiling Mount Bracket**.

1. Determine the best mounting screws and hardware to anchor the mounting bracket with the camera to the mounting surface. Use the following guidelines:
   - For cement ceiling mounting, use the expansion screw to anchor the bracket.
   - For wooden ceiling mounting, use self-tapping screw to anchor the bracket.
   - Make sure that the ceiling is strong enough to withstand more than **8 times** the weight of the camera and the bracket.

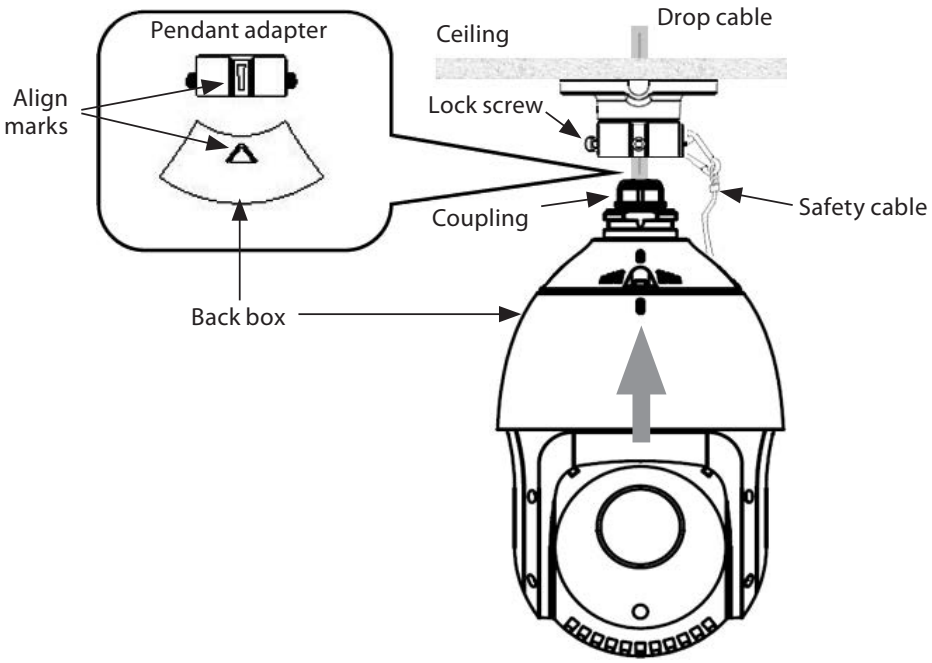
2. Using the mounting bracket as a template, mark the location of the mounting screw holes on the ceiling.

3. If the camera drop cable will be routed through the ceiling, mark the location of a hole for the camera drop cable. The drop cable will be routed through the mounting bracket and can be routed either through the mounting surface or out the side of the mounting bracket.

4. Drill holes in the mounting screws and hardware. Also, drill a 1½" diameter hole in the mounting surface for the drop cable.

5. Clip the safety cable to the loop on the camera mounting bracket.

6. Route the camera drop cable through the mounting bracket, then clip the safety cable onto the loop in the mounting bracket.



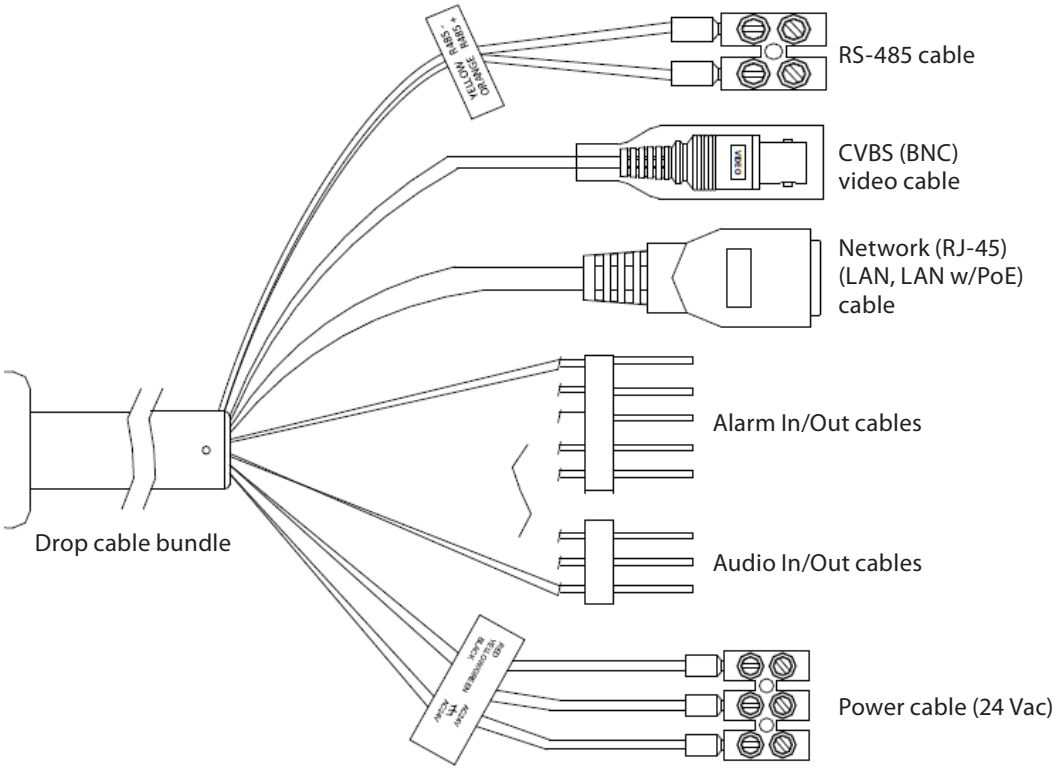
7. Fit the camera coupling into the ceiling mounting bracket, then twist the bracket to align the marks on the bracket and the camera back box. See the figure above.

8. Tighten the two lock screws on the ceiling bracket to secure the camera to the mounting bracket.

9. Feed the camera drop cable through hole drilled at the mounting location, then anchor the mounting bracket to the ceiling.

2.5 Connecting the cables

Drop cables connectors for the IDCMR-IP-POE-PTZ-20X are shown below. Each wire is labeled with its purpose.



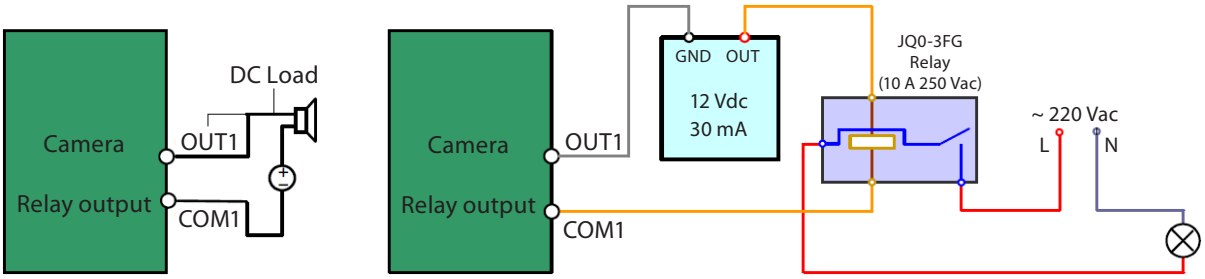
Connect the camera to other devices as needed in the order shown below.

Alarm Input/Output cables

The alarm input/output drop cable bundle provides five wires, ALARM_IN1, ALARM_IN2, ALARM_OUT1, ALARM_COM1 and ALARM_GND. These wires are color coded and labeled.

These connection use the ALARM_IN1 and ALARM_GND wires for alarm input 1, and ALARM_IN2 and ALARM_GND wires for alarm input 2. Alarm inputs normally connect normally open (NO) or normally closed (NC) sensor contacts. The normal contact state is configurable in the camera setup menus.

Connect the camera alarm output drop cables to an alarm reporting device. See the Specifications section for interface requirements and the diagram below. These connection use the ALARM_OUT1 and ALARM_COM1 wires.



The alarm output provides the relay output (no voltage). An external power supply is required when it connects to the alarm device. With a DC power supply (left diagram), the input voltage must be no more than 12 Vdc, 30 mA. For AC power supply (right diagram), the external relay must be used to prevent damages to the camera and avoid the risk of electric shock.

Audio cable

The Audio drop cable provides three wires: AUDIO_OUT, AUDIO_IN and AUDIO_GND (ground). These wires are color coded and labeled.

Connect the AUDIO_IN and AUDIO_GND wires to a line level audio input source. The input signal must be 2 ~ 2.4 Vp-p at 1 KΩ ± 10% input impedance.

Connect the AUDIO_OUT and AUDIO_GND wires to a line level audio receiver (impedance 600 Ω).

RS-485 cables

Connect the RS485+ and RS485- drop cable wires to an RS-485 controller or an NVR with an RS-485 network interface. PTZ features can also be controlled through the camera network (browser) interface, and through a supported NVR PTZ control panel. These wires are color coded and labeled.

Video cables

The video drop cable provides a BNC connector with a CVBS signal for connection to any compatible monitor. The feature is useful for maintenance and for showing the live view display on a local monitor.

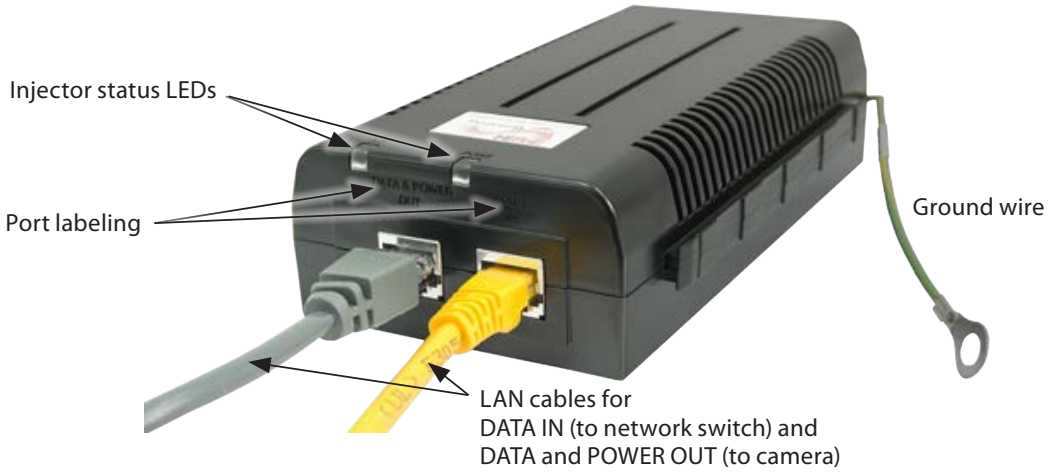
Network (LAN) cable

Connect the network LAN drop cable to a router (switch) through an Ethernet drop cable with an RJ-45 connector. If the drop cable RJ-45 connector is exposed to moisture or dust, apply the Ethernet drop cable seal kit provided. In some network configurations, the LAN cable can connect directly to a Network Video Recorder (NVR) with a built-in network switch.

Power cables

You can power the camera directly by applying 24 Vac power to the drop cable power screw-down connectors. Refer to "APPENDIX D 24 Vac Wire Gauge and Transmission Distance" on page 29 for more information.

The LAN cable can also provide Hi-PoE to the camera. A Hi-PoE injector is provided. A typical PoE injector is shown below.



To use the injector:

1. Connect the injector ground wire to an earth ground terminal. (**NOTE**: Not all PoE injectors have a ground wire.)
2. Connect a LAN drop cable between the network switch and the DATA IN port on the injector.
3. Connect a LAN drop cable between the injector DATA and POWER OUT port and the camera LAN drop cable.
4. Plug the power cable provided (not shown) for the PoE injector into the jack on the injector, then into a standard 120 Vac electrical outlet.

After power is applied to the camera, the camera will perform initial motion checks. Allow these motion checks to complete before continuing (~ 1 minute).

SECTION 3
Configure Network Access

After the camera is powered on, an initial network configuration setup should be performed. This procedure includes:

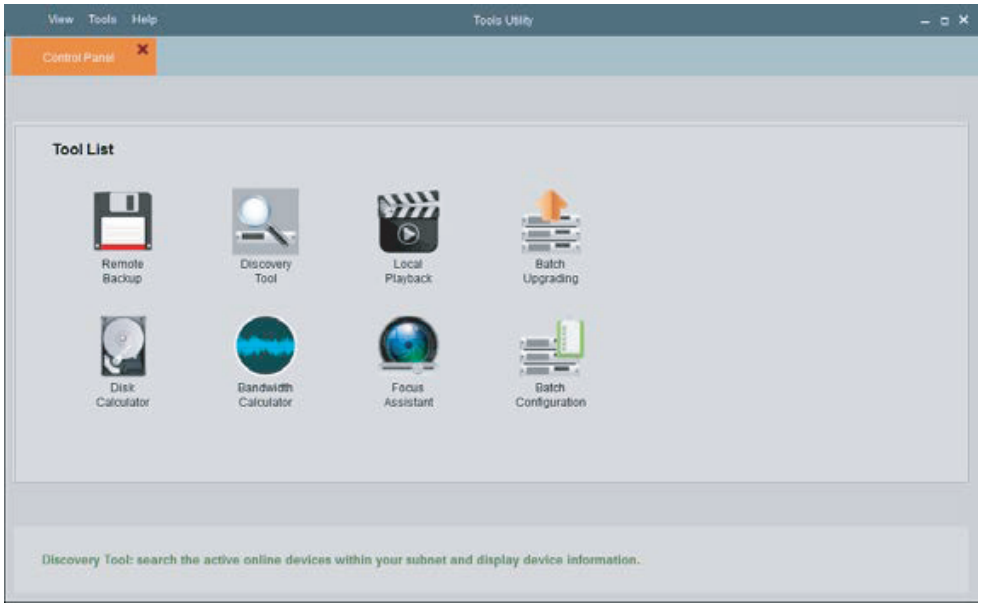
- Installing SADP Tools
- Setting up the camera network configuration

Step 1. Install SADP Tool

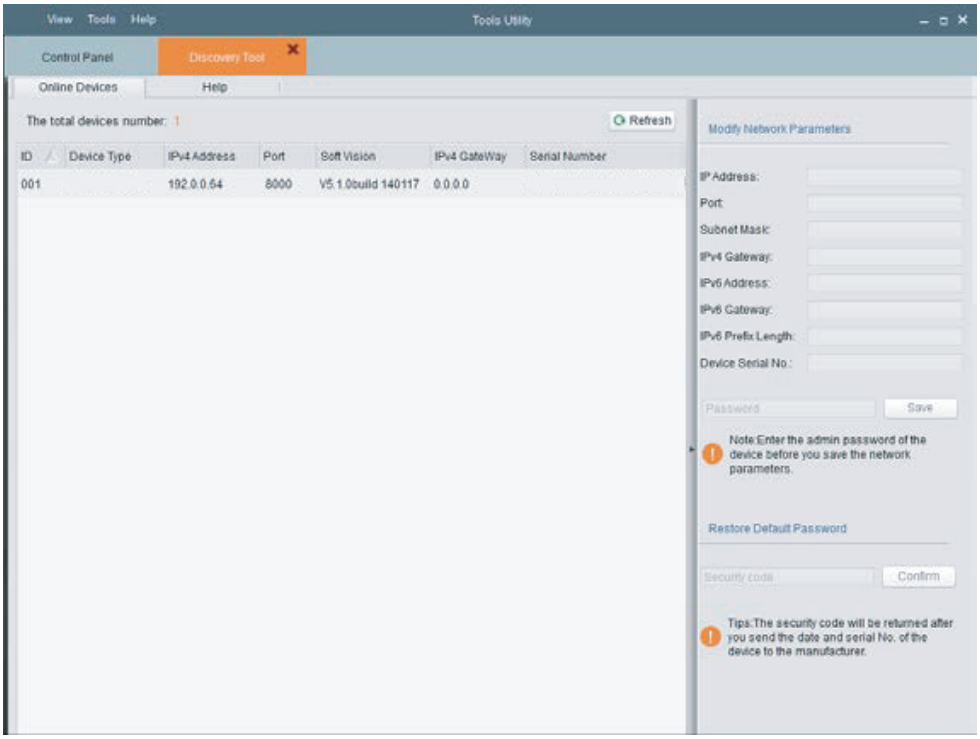
SADP Tool Utility is a collection of useful software programs for use with your IP based cameras and recorders. Within the tool set is the **Discovery Tool** a software utility used to "discover" IP cameras and NVRs/DVRs installed on the LAN and change their network parameters. Use Discovery Tool to setup your camera on a network. See below.
Download: https://www.larsonelectronics.com/images/upload/SADPTool.zip

Tools Utility is provided on the SADP Tool.
Use the Tools Utility Installation and User Manual, and embedded in the **SADP software.**

1. Install the Tools Utility on a PC with access to the LAN where your camera is connected. When the program opens, the following screen appears.

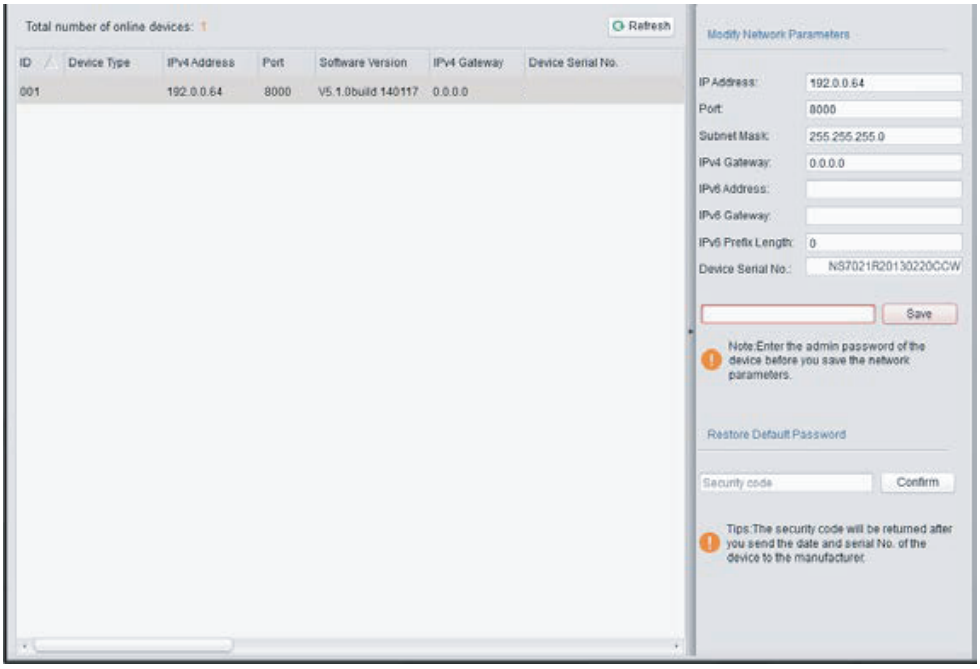


2. Double click the **Discovery Tool** icon to open the program. When the program opens it will automatically list the cameras and recorders installed on the network.

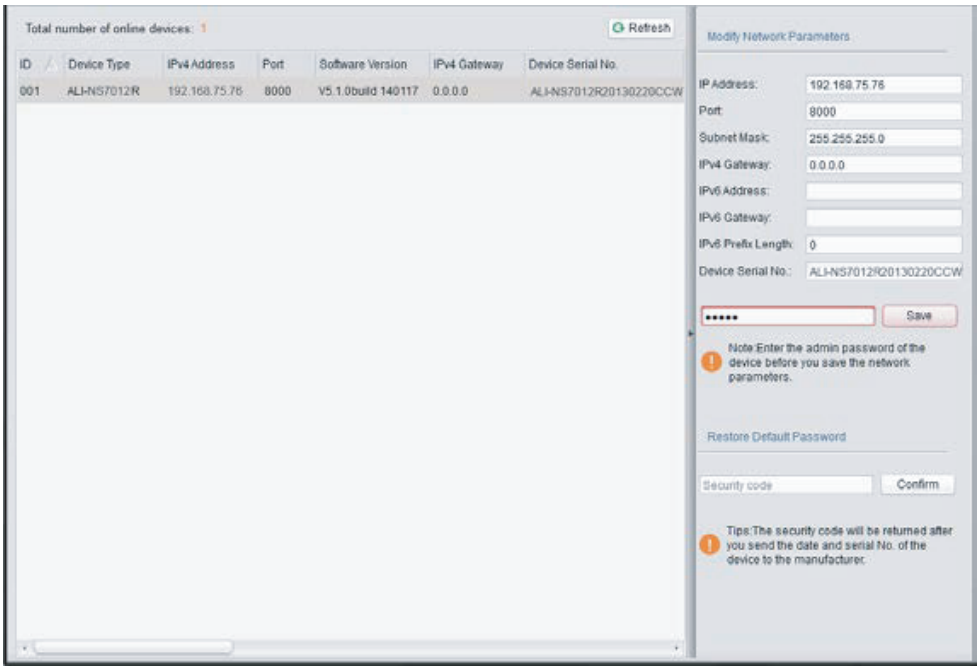


3. To change the network settings of the camera to be compatible with the subnet where it is installed, do the following:

   a. Click the device to highlight it. Notice that the network parameters are shown in the right frame.



b. Modify the network parameters to values compatible with the subnet where it is installed.



c. Enter the **admin** password for the device in the password field. The default **admin** user password for is **ChangeMeNØw**

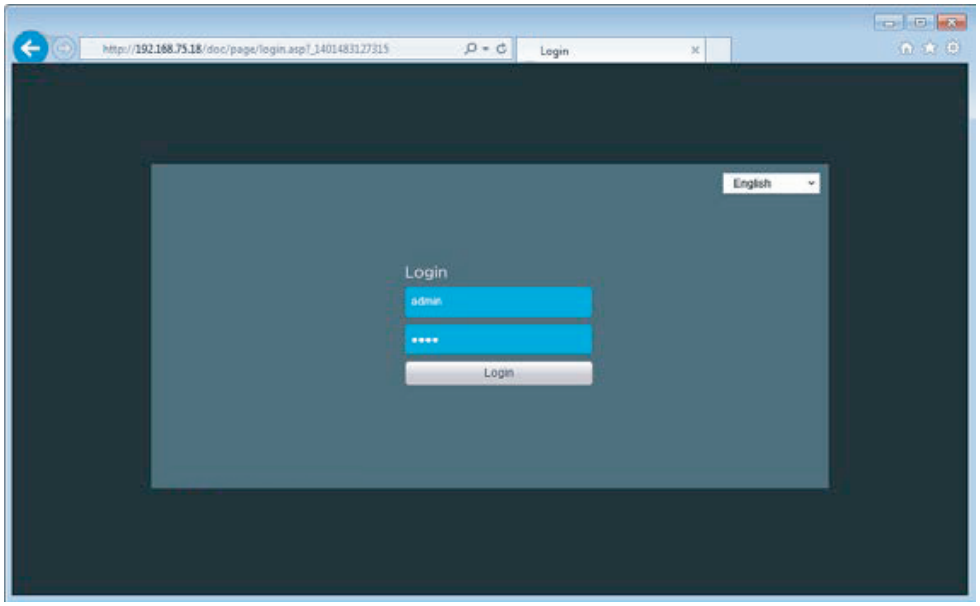
d. Click the **Save** button. The new IP address, port, etc. parameters will appear in the list with the device you modified.

3. Close the Tool Utility by clicking the **Close** icon (☒) in the upper-right corner of the window.

SECTION 4
Remote login

To access the camera from a computer on the LAN:

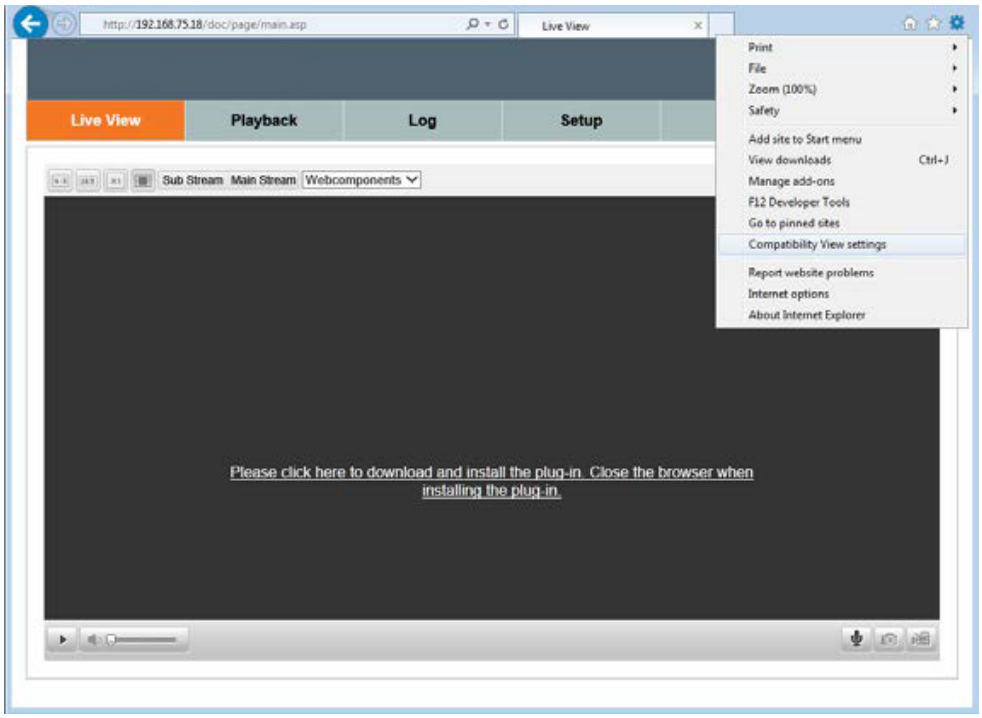
1. Open your Microsoft Internet Explorer browser on your compute and enter the IP address of the camera in the URL field. In the example below, the IP address of the camera is 192.168.75.18.



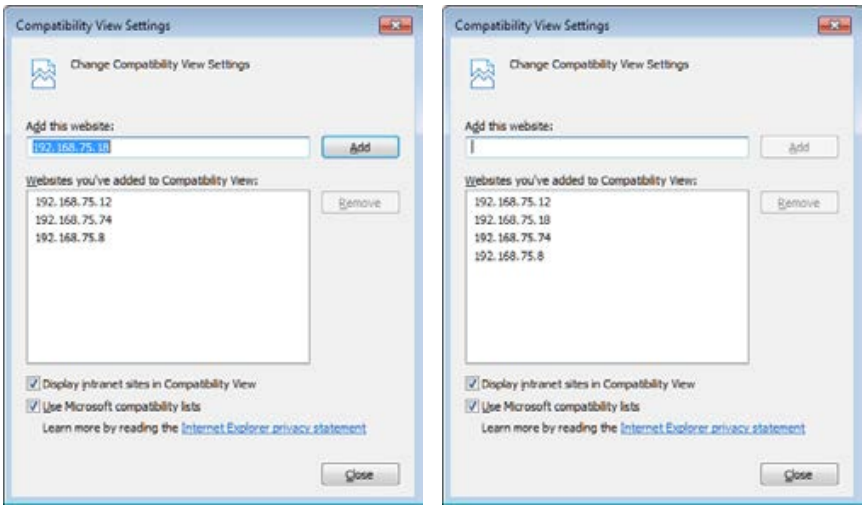
2. In the login window, enter your **User Name** and **Password** in the appropriate fields, then click **Login**. The default **User Name** and **Password** for cameras is **admin** and **ChangeMeN0w**

3. If this is the first time you are logging into the camera at this IP address AND you are using Internet Explorer 10 or newer, you must configure IE for Compatibility mode:

    a. In Internet Explorer, click the Tools icon (located to the right of the tabs), then select Compatibility View settings from the drop-down menu.

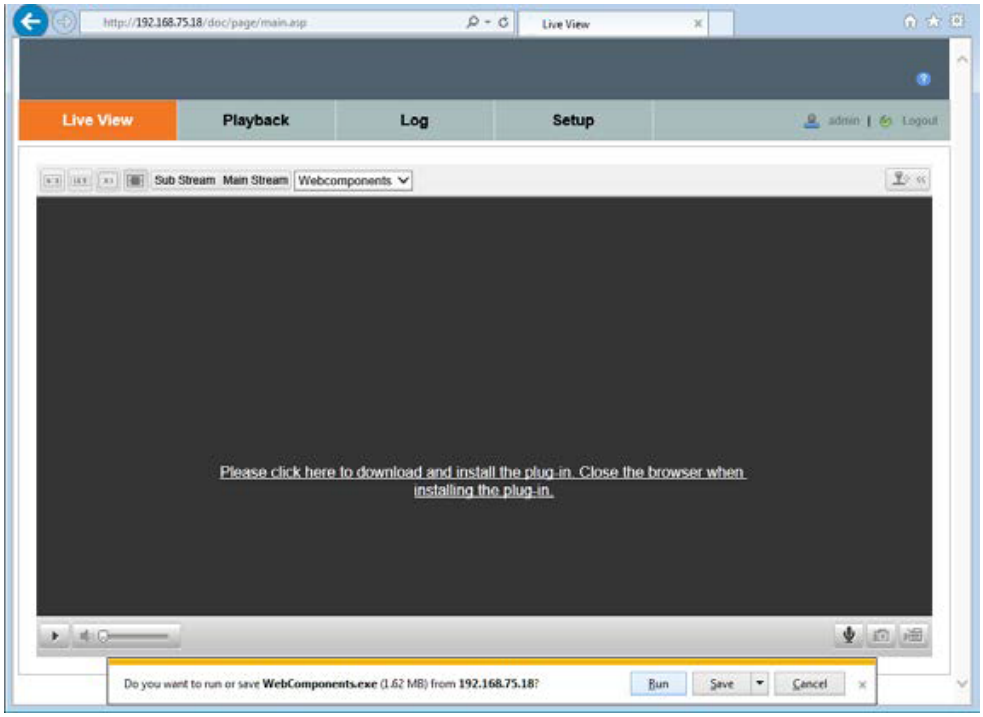


b. In the Compatibility View Settings window, ensure that the IP address of your camera is in the **Add this website** field, then click **Add**.

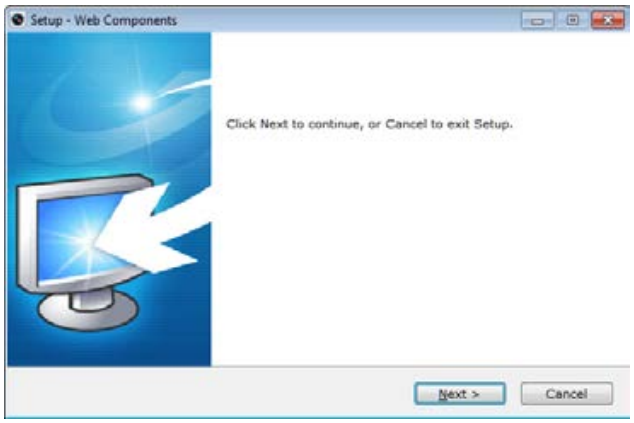


c. After clicking **Add**, the IP address will appear in the Websites list. Click **Close**.

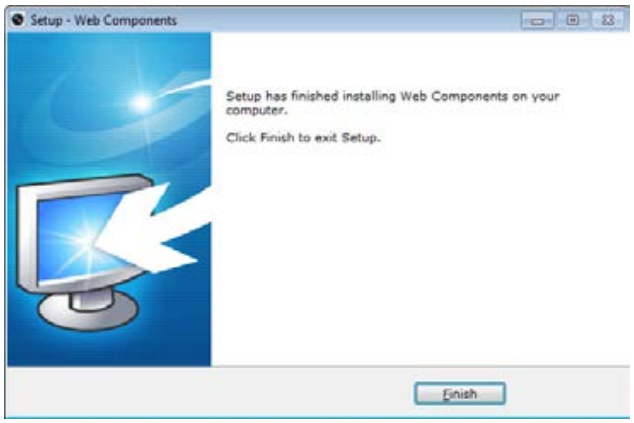
d. If a message on the screen requesting that you install a plug-in (see below), click on the message and continue with the following sub-steps. A message box will appear at the bottom of the window to install the WebComponents plug-in. Otherwise, continue with step "4. In the Live View window shown below, click the PTZ button to open/close the PTZ control panel." on page 22.



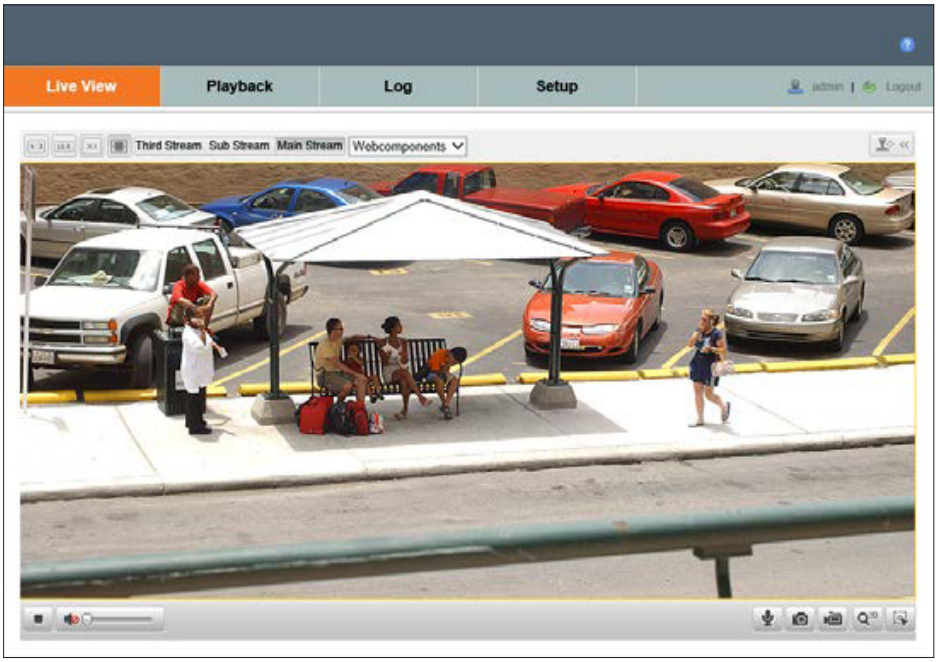
e. In the message box, click **Run** to install WebComponents.exe. The following pop-up window will open. When this window appears, close the browser.



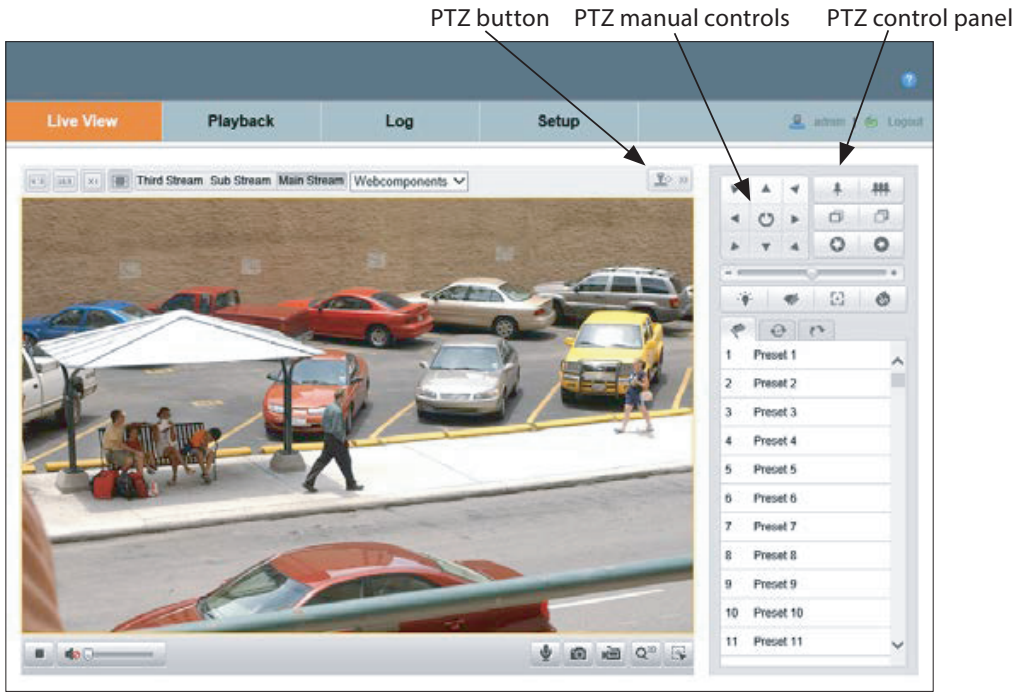
f. Click **Next** to install WebComponents. Allow the plug-in installation to complete. When the following window appears, click **Finish**.



g. Log into the camera again. A **Live View** display will appear.



4. In the Live View window shown below, click the PTZ button to open/close the PTZ control panel.



5. In the PTZ control panel, click the manual control arrows to exercise the pan-tilt-zoom features of the camera.

4.1 Additional configuration steps

Refer to the document IP Camera Software User Manual provided on the software and documentation with your camera to customize the configuration of your camera.

APPENDIX A
Specifications

Camera Module	
Image Sensor	1/2.8" Progressive Scan CMOS
Min. Illumination	F1.5, AGC On: Color: 0.02 lux, B/W : 0.002 lux, 0 lux with IR
Max. Image Resolution	1920 x 1080
Focal Length	4.7 ~ 94.0 mm, 20×
Digital Zoom	16×
Zoom Speed	Approx. 3 s (optical Wide ~ Tele)
Angle of View	58.3 ~ 3.2 degree (Wide ~ Tele)
Min. Working Distance	10 ~ 1,000 mm (Wide~Tele)
Aperture Range	F1.6 ~ F3.5
Focus Mode	Auto / Semiautomatic / Manual
DWDR	Support
S/N Ratio	≥ 52 dB
Shutter Time	1 ~ 1/10,000 s
AGC	Auto / Manual
White Balance	Auto / Manual / ATW / Indoor / Outdoor / Daylight lamp / Sodium lamp
Day & Night	IR Cut Filter
Privacy Mask	8 privacy masks programmable
Enhancement	3D DNR, Defog, HLC/BLC
Pan and Tilt	
Range	Pan: 360° endless; Tilt: -15° ~ 90° (Auto Flip)
Speed	Pan Manual Speed: 0.1° ~ 400°/s, Pan Preset Speed: 400°/s, Tilt Manual Speed: 0.1° ~ 200°/s, Tilt Preset Speed: 200°/s
Number of Preset	300
Patrol	8 patrols, up to 32 presets per patrol
Park Action	Preset / Patrol / Pattern / Pan scan / Tilt scan / Random scan / Frame scan / Panorama scan
Scheduled Task	Auto scan / Frame scan / Random scan / Patrol / Pattern / Preset / Panorama scan / Tilt scan / Dome reboot / Dome adjust / Aux output
Features	
Detection	Intrusion detection, Line crossing detection, Audio exception detection, Motion detection
ROI encoding	Support 4 areas with adjustable levels
Infrared	
IR Distance	Up to 492 ft (150 m)
IR Intensity	Automatically adjusted, depending on the zoom ratio

Alarm	
Alarm I/O	2/1
Alarm Trigger	Intrusion detection, Line crossing detection, Audio exception detection, Motion detection, Dynamic analysis, Tampering alarm, Network disconnect, IP address conflict, Storage exception
Alarm Action	Preset, Patrol, Pattern, Recording, Relay output, Upload center, Upload FTP, Email linkage
Input/Output	
Audio Input	1 Mic in / Line in interface, line input: 2 ~ 2.4 Vp-p; output impedance: 1 KΩ ± 10%
Audio Output	1 Audio output interface, line level, impedance: 600 Ω
Network	
Ethernet	10BASE-T / 100BASE-TX, RJ-45 connector
Main Stream (NTSC)	30 fps (1920 ×1080), 30 fps (1280 ×1720)
Sub Stream (NTSC)	60 Hz: 30 fps (704 ×1480), 30 fps (352 ×1240), 30 fps (320 ×1240)
Image Compression	H.264 / MJPEG
Audio Compression	G.711ulaw / G.711alaw / G.726 / MP2L2 / G.722
Protocols	IPv4 / IPv6, HTTP, HTTPS, 802.1X, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE
Simultaneous Live View	Up to 20 users
Mini SD Memory Card	Support up to 128 GB micro-SD / SDHC / SDXC card. Supports edge recording
User/Host Level	Up to 32 users, 3 Levels: Administrator, Operator and User
Security Measures	User authentication (ID and password); Host authentication (MAC address); IP address filtering
System Integration	
Application programming	Open-ended API, support ONVIF, PSIA and CG
Web Browser	Internet Explorer® 7.0 or above, Apple® Safari® 5.02 or above, Mozilla® Firefox® 5 or above, Google Chrome™ 18 or above
Power	High-PoE & 24 Vac, Max. 30 W
Working Temperature	-22°F ~ 149°F (-30°C ~ 65°C)
Humidity	90% or less
Protection Levels	IP66, TVS 4,000V lightning protection, surge protection and voltage transient protection
Certifications	FCC, CE, UL, RoHS, IEC / EN 61000, IEC / EN 55022, IEC / EN 55024, IEC / EN60950-1
Dimensions	Φ10.50 in × 14.38 in (Φ266.6 mm × 365.2 mm)
Weight (approx.)	8.81 lb (4 kg)
Mount options	PTZCL: Ceiling Mount Bracket PTZWB: Wall Mount Bracket PTZPM: Pole Mount PTZ Bracket PTZCM: Corner Mount PTZ Bracket
Supplied accessories	
	Installation Guide, HPoE Midspan injector, installation hardware

APPENDIX B
Definitions

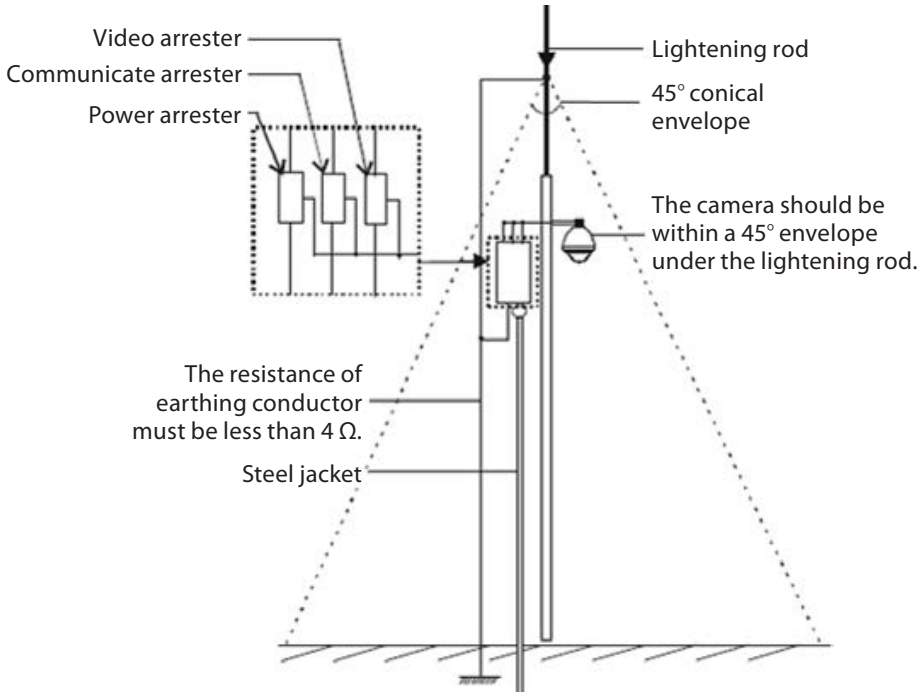
3D Digital Noise Reduction	Comparing with the general 2D digital noise reduction, the 3D digital noise reduction function processes the noise between two frames besides processing the noise in one frame resulting in clearer video.
3D Positioning	In the client software, use the click left mouse button on the desired position in the video image, and then drag a rectangle area in the lower right direction. The dome system will move the position to the center and allow the rectangle area to zoom in. Use the left key of the mouse to drag a rectangle area in the upper left direction to move the position to the center and allow the rectangle area to zoom out.
Auto Flips	In manual tracking mode, when a target object goes directly beneath the dome, the video will automatically flips 180 degrees in horizontal direction to maintain continuity of tracking. This function can also be realized by auto mirror image depending on different camera models.
Auto Focus	The auto focus enables the camera to focus automatically to maintain clear video images.
Backlight Compensation (BLC):	If you focus on an object against strong backlight, the object will be too dark to be seen clearly. The BLC function can compensate light to the object in the front to make it clear. This can cause an over-exposure of the background where the light is strong.
Day/Night Auto Switch	The speed domes deliver color images during the day. And as light diminishes at night, the speed domes switch to night mode and deliver black and white images with high quality.
Label Display	The on-screen label of the preset title, time and dome name can be displayed on the monitor. The displays of time and speed dome name can be programmed.
Limit Stops:	The dome can be programmed to move only within the limit stops (left/right, up/down).
Park Action	This feature allows the dome to start a predefined action automatically after a period of inactivity.
Patrol	A patrol is a memorized series of pre-defined preset function. The scanning speed between two presets and the dwell time at the preset are programmable.
Pattern	A pattern is a memorized series of pan, tilt, zoom, and preset functions. By default the focus and iris are in auto status during the pattern is being memorized.
Power Off Memory	The dome supports the power off memory capability with the predefined resume time. It allows the dome to resume its previous position after power is restored.
Preset Freezing:	This feature freezes the scene on the monitor when the dome is moving to a preset. This allows for smooth transition from one preset scene to another. This also guarantees that a masked area will not be revealed when the dome is moving to a preset.
Presets	A preset is a predefined image position. When the preset is called, the dome will automatically move to the defined position. The presets can be added, modified, deleted and called.
Privacy Mask	This function allows you to block or mask certain area of a scene, for preventing the personal privacy from recording or live viewing. A masked area will move with pan and tilt functions and automatically adjust in size as the lens zooms telephoto and wide.
Proportional Pan/Tilt	Proportional pan/tilt automatically reduces or increases the pan and tilt speeds according to the amount of zoom. At telephoto zoom settings, the pan and tilt speeds will be slower than at wide zoom settings. This keeps the image from moving too fast on the live view image when there is a large amount of zoom.
Scan Modes:	The dome provides five scan modes: auto scan, tilt scan, frame scan, random scan and panorama scan.
Scheduled Task	A time task is a preconfigured action that can be performed automatically at a specific date and time. The programmable actions include: auto scan, random scan, patrol 1-8, pattern 1-4, preset 1-8, frame scan, panorama scan, tilt scan, day, night, reboot, PT adjust, Aux Output, etc.

Slow Shutter	With this feature, the camera will automatically extend the exposure time in low illumination conditions to maintain clear video images. The feature can be enabled or disabled.
User Management	The camera allows you to edit users with different levels of permission. Multiple users are allowed to simultaneously access and control the same camera through the network.
White Balance (WB)	White balance can remove the unrealistic color casts. White balance is the white rendition function of the camera to adjust the color temperature according to the environment automatically.
Wide Dynamic Range (WDR)	The WDR function helps the camera provide clear images even with back lit environments. When there are both very bright and very dark areas in the field of view, WDR balances the brightness level of the whole image and provide clearer images and details.

APPENDIX C
Lightning and Surge Protection

This product includes TVS plate lightning protection technology to prevent damage caused by a pulse signal that is below 3000 watts from sources such as lighting, surging, etc. Protection measures must be taken to ensure electrical safety.

- The distance between signal transmission line and high-voltage equipment or high-voltage cable is at least 50 m.
- Outdoor wiring should better be along the eaves as much as possible.
- In the open field, wiring should be buried underground in sealed steel pipe with one-point grounding. Overhead routing method is not acceptable.
- In regions with thunderstorms or where high induction voltage are present (such as high-voltage transformer substation), high power lightning protection apparatus and lightning conductor are necessary.
- The design for installation and wiring with lightning protection and grounding should be combined with the lightning protection consideration of the building, and conform to the relevant national and industry standards.
- The system should ensure equi-potential grounding. Grounding equipment must satisfy both system anti-jamming and electric safety. It must not allow short circuit and open circuit with the zero conductor of strong grid. When the system is singularly ground, the resistance must less than 4 Ω and the cross-sectional area of the grounding cable must be no less than 25 mm^2. For grounding instructions, refer to local electrical codes and this manual.



Lightning & Surge Protection

APPENDIX D
24 Vac Wire Gauge and Transmission Distance

The following table shows the recommended maximum distance adopted for the different wire sizes when the 24 Vac voltage loss is less than 10%. For the AC driven device, the maximum voltage loss rate allowable is 10%. For example, for a device with the rating power of 80 VA which is installed 35 feet (10 m) from the transformer, the minimum wire gauge required is 0.8000 mm.

Table 1. Table of wire gauge standards

Distance: ft (m)	Wire Gauge (mm)			
Power (VA)	**0.8000**	**1.000**	**1.250**	**2.000**
10	283 (86)	451 (137)	716 (218)	1811 (551)
20	141 (42)	225 (68)	358 (109)	905 (275)
30	94 (28)	150 (45)	238 (72)	603 (183)
40	70 (21)	112 (34)	179 (54)	452 (137)
50	56 (17)	90 (27)	143 (43)	362 (110)
60	47 (14)	75 (22)	119 (36)	301 (91)
70	40 (12)	64 (19)	102 (31)	258 (78)
80	35 (10)	56 (17)	89 (27)	226 (68)
90	31 (9)	50 (15)	79 (24)	201 (61)
100	28 (8)	45 (13)	71 (21)	181 (55)
110	25 (7)	41 (12)	65 (19)	164 (49)
120	23 (7)	37 (11)	59 (17)	150 (45)
130	21 (6)	34 (10)	55 (16)	139 (42)
140	20 (6)	32 (9)	51 (15)	129 (39)
150	18 (5)	30 (9)	47 (14)	120 (36)
160	17 (5)	28 (8)	44 (13)	113 (34)
170	16 (4)	26 (7)	42 (12)	106 (32)
180	15 (4)	25 (7)	39 (11)	100 (30)
190	14 (4)	23 (7)	37 (11)	95 (28)
200	14 (4)	22 (6)	35 (10)	90 (27)

Table 2. Wire Gauge Standards

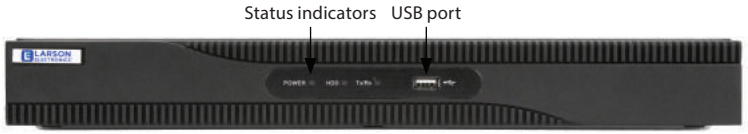
Bare Wire Gauge (mm)	American Wire Gauge AWG	Cross-sectional Area of Bare Wire (mm^2)
0.750	21	0.4417
0.800	20	0.5027
0.900	19	0.6362
1.000	18	0.7854
1.250	16	1.2266
1.500	15	1.7663
2.000	12	3.1420
2.500		4.9080
3.000		7.0683

NVR-POE Series Embedded Network Video Recorders Quick Setup Guide

This quick setup guide provides instructions to initially setup and use the NVR-POE network video recorders (NVRs).

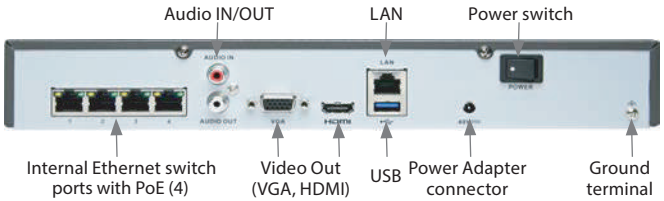
Controls and Indicators

Front panel

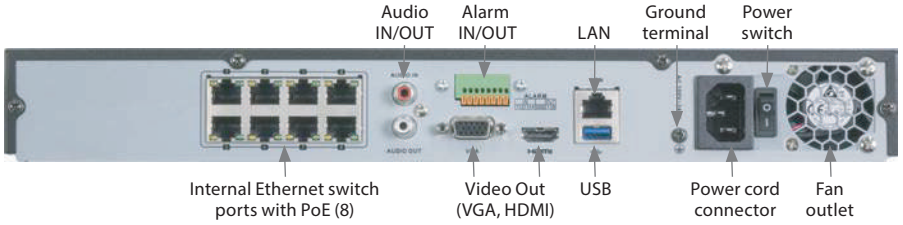


Item		Function / Description
Status Indicators	POWER	Indicator is green when the unit is powered on. When the unit is off, the LED is red if power is available.
	HDD	HDD indicator blinks red when data is being read from or written to an HDD.
	TX/RX	Blinks green when the network connection is functioning normally.
USB Interfaces		Universal Serial Bus (USB) 2.0 port for additional USB devices such as a mouse or Hard Disk Drive (HDD).

NVR-POE-4CH Backpanel

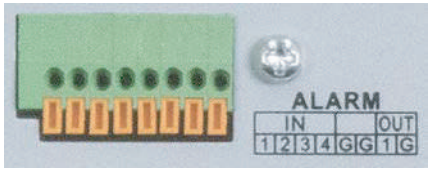


NVR-POE-8CH Backpanel



Item	Description
VIDEO OUT (VGA, HDMI)	1 channel (HDMI/VGA). See "Specifications" on page 4 for supported output resolutions.
Audio IN / OUT	RCA connectors for audio line input and line output
Alarm IN / OUT	Terminations are provided for 4 alarm inputs (N.O. or N.C.) and 1 alarm output. See below. (If applicable)
Power connector	NVR-POE-4CH: Connect the 48 Vdc power adapter provided with the recorder to this port, and to a standard 100 ~ 240 Vac power source using the power cord provided. NVR-POE-8CH: Connect the power cord provided with the recorder to this port and to a standard 100 ~ 240 Vac power source.
ON / OFF Switch	Switch for powering the recorder on or off.
GROUND	Terminal for ground. Connect to earth ground before powering on the NVR.
LAN	10/100BASE-T (NVR-POE-4CH) or 10/100/1000BASE-T (NVR-POE-8CH) Ethernet network interface
USB interface	Universal Serial Bus (USB) port for additional devices such as USB mouse and USB Hard Disk Drive (HDD). USB 3.0 port in NVR-POE-8CH only.
Internal Ethernet switch ports	4 (NVR-POE-4CH) or 8 (NVR-POE-8CH) 10/100 Mbps ports for IP cameras. These ports provide Power over Ethernet (PoE).

Alarm IN / OUT Terminals (If applicable)



Item	Description
ALARM IN (1 through 4 and G, G (ground))	Alarm inputs 1 - 4. Alarm input is tied to ground at G or G terminals through the alarm sensor (N.O. or N.C.).
ALARM OUT (1 and G)	Alarm outputs 1 with ground termination.

Mouse control

A standard 3-button (left / right / scroll-wheel) USB mouse can also be used with this NVR. To use a USB mouse:

1. Plug the USB mouse into the either the front panel or back panel USB connector of the NVR.

2. The mouse will be automatically detected. If the mouse is not detected, the mouse may not be compatible with the NVR. Please refer to the recommended device list from your provider.

Using the mouse

Action	Effect
Left click	**Single click**: Live view: Select channel and show the quick set menu. **Menu**: Select and enter.
	Double click: Live view: Switch between single-screen and multi-screen.
	Click and drag: PTZ control: pan, tilt and zoom. **Tamper-proof, privacy mask and motion detection**: Select target area. **Digital zoom-in**: Drag and select target area. **Live view**: Drag channel / time bar
Right click	**Live view**: Show menu. **Menu**: Exit current menu to upper level menu.
Scroll wheel	**Scroll up**: Live view: Previous screen. **Menu**: Previous item.
	Scroll down: Live view: Next screen. **Menu**: Next item.

Step 1. Getting Started: Unpacking the Equipment

What's in the box

Your system includes:

- NVR
- 48 Vdc power adapter (NVR-POE-4CH only)
- 6 foot Ethernet cable
- 6 foot HDMI cable
- Power cable, power adapter and cable
- HDD SATA and power interface cables for internal hard disk drive(s)

Remove the equipment from its packaging and place it on a flat, clean surface. Inspect each item. If any visible damage is present, contact your supplier for a replacement. Verify that your order is complete.

What you need

Although each security system installation is different, most require the following items not included with your system components:

- VGA or HDMI compatible computer monitor
- IP cameras and cables compatible with the NVR
- Tools to install the cameras and route power and Ethernet cables
- Fasteners to attach the cameras to the mounting surfaces
- A display device to connect to the NVR. The NVR will connect directly to a VGA video monitor or an HDMI monitor (HDMI cable is provided). The display device is usually needed only for system setup. It can be disconnected when the NVR is networked for access across a LAN or Internet.
- Uninterruptible power supply (UPS). This device is used to ensure system stability during voltage surges, sags, and outages. If a UPS is not available, a power strip with strong surge protection is highly recommended.

Step 2. HDD Installation

HDD comes preinstalled. Please contact Larson Electronics for replacement information.

Step 3. Install the NVR

For the following steps, refer to the back panel photo above for the location of connectors.

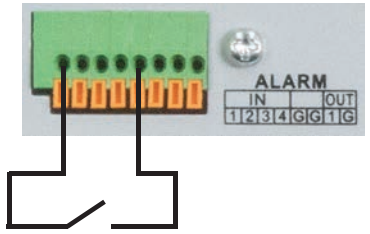
1. Place the NVR in a location that is secure, well ventilated and clean. The NVR should be positioned such that the back panel connectors are accessible and the ventilation holes on the sides are not blocked.

2. Connect the ground terminal on the back of the NVR to an earth ground. Refer to local codes for proper grounding.

Step 4. Connect alarm devices to the NVR

Wiring alarm inputs to the NVR

You can wire up to 4 alarm inputs to the NVR.



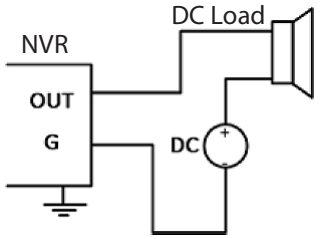
Typical ALARM IN wiring

Wiring alarm outputs to the NVR

The NVR provides 1 alarm output termination that supports a DC load alarm out circuit. These terminations are marked on the back of the NVR and are labeled OUT 1 G (G = ground termination).

DC load alarm output circuits

DC loads must operate within the limitation of 12V / 1A. To connect to a DC alarm output, use the following diagram:



Step 5. Install a monitor, mouse, power

For the following steps, refer to the back panel photo above for the location of connectors.

1. Install and setup your monitor in accordance with the instructions provided with the monitor. Do not power it on at this time.
2. Cable the HDMI or VGA connector to your monitor's VGA or HDMI input. The HDMI interface provides the best performance.
3. Plug the mouse into the USB connector on the front or back of the NVR.
4. If you plan to access your NVR remotely, or configure your NVR to transmit alerts, email, etc. to external servers, plug a drop cable from your local area network (LAN) into the RJ45 LAN connector on the back of the NVR.
5. Connect the power cord (or power adapter for NVR-POE only) to the power connector on the back panel of the NVR, and then into a UPS (recommended) or surge protector.

Step 6. Install cameras

Install your security cameras. Always follow the installation instructions provided with the camera. **NOTE**: If the cameras feature Power over Ethernet PoE), the cameras that plug into the ports on the back of the NVR can be powered through those ports.

Step 7. Connecting it together – initial system setup

1. Plug the Ethernet drop cables from the cameras into the RJ-45 Ethernet Switch Ports on back of the NVR.
2. Power on your cameras.
3. Power on the NVR using the power on / off (I / O) switch on the back panel.
4. Power on the monitor.

NOTE *Some monitors have multiple inputs such including VGA ,HDMI, BNC, etc. If you are using this kind of monitor, configure your monitor to* display the input connected to your NVR (HDMI or VGA).

Step 8. Use the Wizard for basic configuration setup

Power on the NVR. Normally, an splash screen appears within 2 minutes.

Password _____

(Write New Password Here)



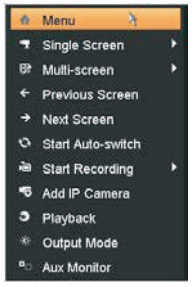
By default, the Setup Wizard will open automatically.

Important Notes for using the Wizard: **Default Password:** **ChangeMeN0w**

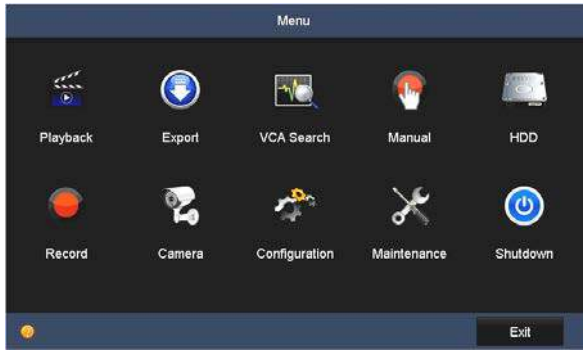
- **Password**: When logging into the recorder for the first time, create a "**Strong**" administrator user password. Follow the on-screen instructions, and save this password and the GUID file created by the firmware in a secure location. **NOTE**: There is no factory default password for this device.
- **Date and Time**: Set the time zone, date and time correctly. All recorded video and capture (photo) files are time stamped.
- **Storage - HDD**: In the HDD Management wizard, if a new recorder is shipped with a pre-configured HDD, nothing needs to be done with it in this window. If you installed an HDD or replaced the HDD, that HDD needs to be initialized by the recorder before it can be used to record data. Select (check the box for) that HDD, then click **Init** to initialize the disk. **NOTE**: **Init** will erase all data from the disk and can take several minutes to complete. When the initialization is complete, click **Next** to continue.
- **Network Settings**: By default, the recorder acquires it's network settings using DHCP (dynamic network settings). Depending on the configuration of the network, these settings may change. To improve remote access to the recorder, Observint recommends that you configure the DVR with fixed network settings. To easily change the DHCP acquired network settings to fixed network settings, un-check the **Enable DHCP**option in the network setup menu, and then click **Apply**.

Step 9. Access the Menu system

After the initial setup of your QVR using the Wizard, the Menus interface enables you to refine your configuration settings and expand the functionality of the system. To use most menus, the user must log into the NVR system, either locally or remotely, with administrative privileges. To open the Menu system from the Live View screen, right click anywhere in the screen, then select **Menu**.



If ID Authentication is not disabled (see the **Menu | Configuration | General** settings), a login window will open. In the Login window, select a User Name with administrative privileges, enter its password, then click **OK**. A window of Menu icons will open.



For additional information about using your system, refer to the ***Embedded Network Video Recorder Firmware V3.4.x User Manual*** provided electronically with your system.

Specifications

Model	NVR-POE-4CH	NVR-POE-8CH	
Number of Channels Supported	4	8	
Compression Format	Supports H.265/H.264/H.264 OVC		
Recording Performance	40 Mbps max	80 Mbps max	
Remote Viewing Output Capacity	80 Mbps max	160 Mbps max	
Supported Frame Rate per Channel	Main stream: Up to 60 fps Sub-stream: Up to 60 fps		
Recording Type	Continuous, Schedule, Event, Motion Detection, VCA		
Supported IP Camera Resolution	8MP / 6MP / 5MP / 4MP / 3MP / 1080p / UXGA / 720p / VGA / 4CIF / DCIF / 2CIF / CIF / QCIF		
Supported Playback Resolution	8MP / 6MP / 5MP / 4MP / 3MP / 1080p / UXGA / 720p / VGA / 4CIF / DCIF / 2CIF / CIF / QCIF		
Synchronous Playback	4-ch @ 1080p	2-ch @ 4K, or 8-ch @ 1080p	
Video Output	VGA, HDMI		
HDMI Video Output Formats	4K (3840 × 2160)/30 Hz, 1920 × 1080/60 Hz, 1600 × 1200/60 Hz, 1280 ×1024/60 Hz, 1280 × 720/60 Hz, 1024 × 768/60 Hz		
VGA Video Output Formats	1920 × 1080/60 Hz, 1600 × 1200/60 Hz, 1280 × 1024/60 Hz, 1280 × 720/60 Hz, 1024 × 768/60 Hz		
Two Way Audio Input	1-ch, RCA (Linear, 1kΩ)		
Audio Output	1-ch, RCA (Linear, 1kΩ)		
Export Formats	MPEG4		

Model	NVR-POE-4CH	NVR-POE-8CH	
Ethernet	1x 10/100 Mbps RJ-45 self-adaptive Ethernet interface, 4 independent 10 /100 Mbps PoE Ethernet interfaces	1x Gigabit RJ-45 self-adaptive Ethernet interface, 8 independent 10 /100 Mbps PoE Ethernet interfaces	
Power Over Ethernet	Max Power: 40 W Supported Standards: 802.3af, 802.3at	Max Power: 120 W Supported Standards: 802.3af, 802.3at	
USB	2x USB 2.0	1x USB 2.0 (front panel), 1x USB 3.0 (rear panel)	
Hard Drive Interface	1x SATA	2x SATA	
Hard Drive Capacity	1x HDDs max, up to 6TB capacity	2x HDDs max, up to 6TB capacity each	
Alarm Input	Camera Dependent	x4 (NVR) and Camera Dependent	
Alarm Output	Camera Dependent	x1 (NVR) and Camera Dependent	
Operating System	Embedded Linux		
Security	Password Protection		
Protocols	TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS		
Power Requirements	48 Vdc	100~240 Vac ≤ 180 W	
Power Consumption	≤ 10 W (without HDD)	≤ 15 W (without HDD)	
Weight	2.2 lbs. (without HDD)	6.6 lbs. (without HDD)	
Dimensions (in.)	12.4" W × 9.1" D × 1.8" H	15.0" W × 11.4" D × 1.8" H	
Operating Temperature	14°F ~ 131°F		
Color / Material	Black		
Material	Aluminum		
Approvals	CE, FCC, RoHS, UL		
Remote Client System Requirements			
Operating System	Microsoft Windows XP, Vista, 7, 8, 10 (32-bit and 64-bit version) Apple MacOS X 10.5 (Intel x86 only), 10.6 and 10.7		
Web Browser	Microsoft Internet Explorer 8.0, 9.0, 10, and 11 (32-bit version), Safari 5 and higher		
Software Requirements	Web Component Installation		

Password Reset

1. If they are not already connected, connect a monitor and a USB mouse to the NVR. Use the USB port at the back on the unit to connect the mouse. The device will not accept a keyboard; you will use an on-screen keyboard to enter information.

2. Power up the NVR if it is not already running.

3. Right-click anywhere on the screen to bring up an initial menu. Select Menu from this list. You will then get a dialog box asking for a username and password.

4. Double-click in the lower left corner of this dialog box (not the lower left corner of the screen). There is an invisible button in this dialog box. Another dialog box will appear, asking for the unit's serial number and a secure code. A unique serial number will populate on its own. Product ID located on bottom of unit.

5. Call Larson Electronics tech support at 800-369-6671. When a support tech answers, tell them that you have lost the administrative password to your NVR and wish to reset it to factory default. They will ask for the unit's serial number, which you got in step 4. Please provide a return contact number with the serial number. The tech will have to validate the serial number and call back with a confirmation number. They will provide you with the secure code. Write this code down before entering it into the dialog box on screen to make sure that you got it correctly from the tech. Click OK when done.

6. After entering the secure code and clicking OK, you will then be able to set the admin password to one of your choosing.

Note: As a security feature, be aware that the secure code that the tech provides will only be good for 24 hours.